The Builder.

Vol. LVII. No. 2430. Saturday, August 31, 1889.

ILLUSTRATIONS.

The Paston Monument, North Walsham Church, Norfolk.—From a Drawing by Mr. H. H. Statham ..... *Double-Page Ink-Photo.*
Sketches in the Loire District ..... *Double-Page Photo-Litho.*
The Chapelle du Marché, Bléré ..... *Single-Page Photo-Litho.*
St. Étienne, Caen.—From a Drawing by Mr. R. J. Haines ..... *Single-Page Photo-Litho.*
The Imperial Palace, Strasburg.—Herr Herrmann Eggert, Architect ..... *Two Single-Page Typo-Gravures.*

Blocks in Text.

Sketches in the Loire District ..... *Pages* 148-150
Sketches of the Eiffel System of Bridge Building 151
An American Country House 154
Crematorium and Chapel, Buffalo, N.Y. 155
Details of the Paston Monument, North Walsham Church 156, 157
Plan of the Imperial Palace, Strasburg 157

CONTENTS.

On the Banks of the Loire 147
Notes 151
The Birmingham Electrical and Industrial Exhibition 153
An American Country House 154
The Cambrian Archæological Association in Brittany 154
Crematorium and Chapel, Buffalo, N.Y. 155
The Sliding Railway 155
The Paston Monument, North Walsham Church 156
Sketches in the Loire District 157
St. Etienne le Vieux, Caen 157
The Imperial Palace at Strasburg 157
Cottages at Dunkling, Somerset 157
Competitions 157
Essex Archæological Society 158
Concrete Floors 158
The Student's Column. Water Supply.—IX.: Qualities of Water 158
Church-Building News 159
Recent Patents 159
Recent Sales of Property 160
Meetings 160
Miscellanea 160
Technical Education and Registration of Plumbers 160
Removing Oil Paint 160
Prices Current 161

On the Banks of the Loire.

UST it be confessed? The Loire is rather disappointing. So much has been said of its châteaux; they have been extolled to such an extent as the finest development of the Renaissance movement this side of the Alps, that when one actually sees them, and examines them, Hope is cheated by Fact, and the eye hardly keeps the promise held out to the imagination. Perhaps the chief reason for this feeling is that everything is so much restored; and with whatever sentiments one does or ought to regard the restoration of ancient buildings, to the sketcher it means disappointment, while to the sentimental architect it means the disturbance of old associations, the knowledge that no discoveries are left for him to make, and the removal of the moss and the lichen which, as an architect, he loves, but which, as a surveyor, he knows are better replaced with neat pointing. That is not the stone on which the elbow of the Duke of Guise rested when they summoned him to the audience which ended in his murder. It is useless to look on the floor for the stain of his blood, for the floor is modern. The new stone is like the old, and so, may be, are the floor tiles, and perhaps the Duke himself could hardly tell the difference, but the sentimental architect in vain tries to accept the one as of equal value with the other.

There is another reason. When the sketcher goes forth to sketch, however much he may be delighted with the curious and the beautiful, he undoubtedly hankers after the useful. Moreover, unless he has unlimited time at his disposal, he desires subjects for which an hour or two will be enough. But in these châteaux by the Loire he is sadly hampered by the carving. All the external stonework from which he might hope to get suggestions is nothing without the carving, and few contracts in these days will bear to be weighted with carving. Hardly a sketch can be made that does not involve hours' work in drawing the carving. He cannot leave it out or merely indicate it, for the work is nothing without it, and he cannot put it in, for he has not time. And so he is disappointed.

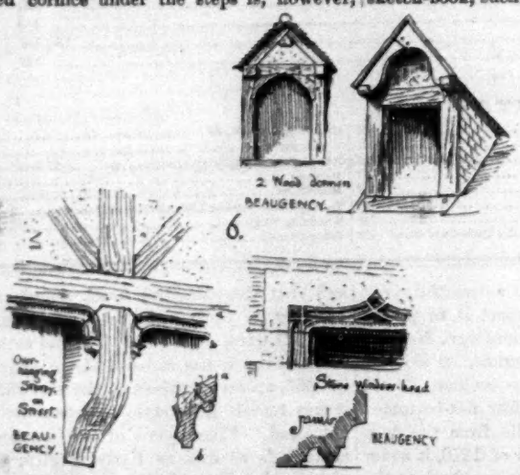
And then there is the Loire itself. It is admitted on all hands to be a deceitful river. From its size one would expect it to play a great part in navigation and strategy. Nothing of the kind. Its swift current, its shifting sands, and its liability to sudden floods, banish all craft, except a few flat-bottomed boats, from its bosom; while, from the days of the barbarians to the war of 1870, it never offered more than a temporary check to the invader, save only when Joan of Arc kept the English at bay along its banks. It is too wide to be beautiful, the hills along its sides are dwarfed by its extent, the bridges which crawl across it are monotonous from their length, its turbid waters invite no bather, its strong stream warns off the oarsman. It has been called majestic, but its majesty is one of fear and not of love.

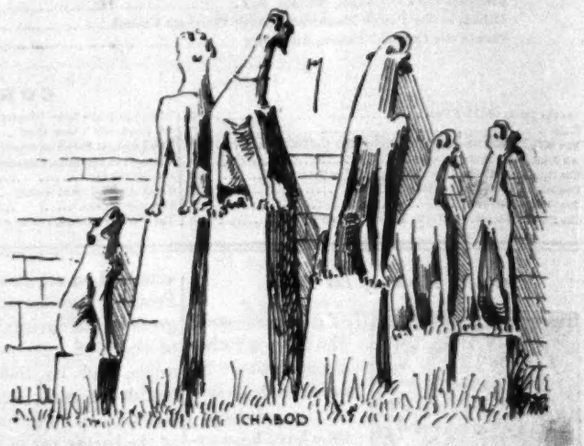
But let us drop these peevish reflections, and look round with more cheerful eyes. Orleans, Blois, Tours,—do not these names stir the spirit? They are all on the Loire, all flourishing towns, in which new streets and modern boulevards intersect and surround tortuous alleys, lined with old houses that have never been restored since they were built three or four centuries ago. Let us go to Orleans first, which is the highest up the Loire, and first reached from Paris. Beyond the cathedral there are no ecclesiastical buildings worth seeing. There are many churches, but they have lost all, or nearly all, their interest. In England one is hardly surprised to find churches without much character. What escaped the violence of Reformers and Puritans, ran the risk of decay from the neglect of last century; and what survived that neglect has fallen a prey to the learning and zeal of the restorer of our own day. Besides, the change of ritual itself was enough to account for the gradual loss of ancient features. But in a country that has always professed the same faith, in buildings that have always witnessed the same kind of services, one naturally expects most of the original flavour to be retained. And one is apt to forget that if England had her Reformation, France had her Revolution, and that the mobs of 1790 were even more destructive than the iconoclasts of our two Cromwells. In France, too, as in England, the love for Gothic work died out for two centuries; for many years zeal for the old religion cooled, and the result was the neglect of which we see the effects to-day. But, whatever the cause, the fact remains that the churches of Orleans are devoid of interest, and that the cathedral itself, though a fine building, is tame and lifeless as compared with Chartres or Tours. The old cathedral fell a victim to the violence of the Calvinists in 1567, all save portions of the east end, and it was rebuilt in a style that was dying, if not dead. Flamboyant of the seventeenth century is as dull as Early English of the nineteenth. From 1601, when the first stone was laid, the works progressed till the Revolution in 1790. Many architects were employed, but their successive efforts will hardly delay the sketcher for very long. He will find more interest in the narrow, old-fashioned streets.

Although Orleans is a thriving modern town, still there are to be found many ancient houses by those who will look for them, beyond those mentioned in the guide-books. These indispensable volumes enumerate the most notable,—the old Hôtel de Ville and the house of Diana of Poictiers, now both museums; the house of Agnes Sorel, rich in detail, and where one first makes the acquaintance of the elaborate circular stone staircases of the district, with their spiral handrails and strings worked on the newels, and their carved cornices following the rake of the steps as they mount up the walls; the house of François I., now a warehouse, but still retaining its staircase and other features half submerged beneath the tide of barrels and boxes. They also mention the house of Jeanne d'Arc, but hasten to explain that none of the work of her day is left in the structure we see, a remark which may be extended to the town generally—for of work which her eyes might have rested on, or her hand have touched, there is hardly a stone to be found.

We give here a few illustrations of the characteristic stone staircases of the district. The first (fig. 1—see lithograph plate), from the house of François I. in Orleans, is a comparatively small example, the steps being not above 3 ft. wide. The sketch shows the stout stone newel, ending in a base into which the handrail dies. There is a plain moulded cornice beneath the end of the steps, both on the newel and on the wall. The next, from the house of Agnes Sorel (fig. 2, lithograph), also in Orleans, shows a larger staircase, 5 ft. or 6 ft. wide, with the plinth, handrail, and cornice winding round the newel, and a slightly-carved cornice following the rake of the steps up the wall. The enclosing walls are square on plan. In the next example (fig. 3, lithograph), from Chambord, the walls are circular on plan, and the space between the handrail and cornice on the newel

is divided by a string similar in section to the handrail: this view also shows the finish of these members at the top. The fourth example is from the Château de Chaumont (fig. 4, lithograph). Here the detail is more elaborate. The work on the newel, which is 3 ft. in diameter, is very much injured, but we can still distinguish a series of canopied niches, separated by twisted shafts, the whole work being crowned by a carved cornice. The steps are 8 ft. wide, and the surrounding walls form an octagon on plan. The elaborately-carved cornice under the steps is, however, circular on plan, and the soffits caused by the circle resting on the octagon are supported by corbels variously carved.





It is obvious from these few examples that the variety of ways in which the dominating idea of a wide circular staircase can be treated is very large; and, as a matter of fact, no two examples are treated exactly alike. The finish of the newel at the top gives rise to much good detail. Sometimes it is treated as part of the balustrade wall, and merely coped at the same height; but oftener it is carried up, crowned with a capital, and made the central shaft from which vaulting ribs are sprung on to the outside wall, as at Blois. There is one unfortunate result from carrying the main lines in a raking manner up the walls, and that is that the designers have thought it necessary to put the door heads on the rake as well (as shown in the view from Chaumont). This is undoubtedly an awkward expedient; and indeed the difficulty of harmonising the raking lines of the stairs with the horizontal lines which must necessarily occur at the top in connexion with the roof, is one which happened in every case and which was seldom satisfactorily surmounted.

If any one wishes to gain some idea of the appearance of a fifteenth-century town, let him go to Beaugency, which lies between Orleans and Blois. The direct road from the station leads into the more modern portion of the little town, but a very short walk will take the visitor into streets and alleys where every house has some feature of the fifteenth or sixteenth century. The streets are of the same width now as then; they have the same turns and the same declivities. The outlooks are somewhat altered, no doubt, for six out of seven of the gates are gone; the castle, built by "Le beau Dunois," has been shorn of much of its beauty, and converted into a workhouse; the great donjon, or "tour de César," now rears itself up only some 70 out of its ancient 115 ft; the walls of the town merely remain in places, but the imagination has no great difficulty in filling the gaps and in picturing the ancient aspect of the place when the castle commanded the long bridge that straggled across the Loire on its narrow pointed arches, of which some still remain, and the walls presented their sullen towers to the stranger, while above the gabled houses, with their good stone fronts wherein all the windows and doors were carefully wrought, rose the great square mass of the gloomy "tour de César." It is a curious, dilapidated place. Its substantial houses overrun with squalid children, its ruinous tower and mutilated castle, its picturesque views, where the detail, though hopelessly injured, still suggests its former splendour (fig. 5, lithograph), combine to give it the dismal appearance of an ancient gentleman in rags. It looks as if the place had neither wealth enough to preserve its former state, nor energy enough to make the old give way to the new. And yet it has its own interest, and offers not a few scraps to the sketch-book, such as fig. 6 subjoined.

From Beaugency the broad, brown Loire flows swiftly on to Blois, whither the far-famed château attracts many, many visitors. To make the round of a show-place in England with a large party to whom the guide drones out his oft-told tale is bad enough; but to do the same when the dismal tidings are told in a foreign tongue is to endure the boredom without gleaning the information which may be held as an inadequate compensation. To this ordeal, however, the visitor is subjected at Blois, and through many rooms he is taken, all swept and garnished, and restored and decorated, in a manner as thorough as it is beautiful; and beautiful the visitor admits it to be, though his sentimental soul shrinks from its evident newness and sighs for the actual walls that witnessed the stirring events briefly narrated by the guide. Here stood the Duke of Guise when he was summoned to his last interview with Henri III., this was the room he crossed, there was the door which was locked so that he might be compelled to pass into a room convenient for his murderers; there he received the first blow, here he came to die, yonder is the room where meanwhile two monks, in ignorance of the nature of the deed, were offering up prayers for the success of "an enterprise undertaken for the peace of the Kingdom." Then, again, this was the window from which the captive queen, Marie de Medicis escaped by letting herself down by a rope; that was the boudoir of Catherine de Medicis, and yonder was the observatory where she sought guidance from the stars. But the stars, if in their eternal revolutions they can recollect so fleeting an interval as the life of Catherine de Medicis, would hardly recognise her observatory to-day; the parapet to which the fair fingers of Queen Marie clung is now new and white; everything is beautifully and learnedly restored; large masses of white stone obtrude themselves on the eye that loves to decipher history for itself among time-worn devices, and they distil from it a tear to mingle with those shed by a row of disconsolate gargoyles, which seem to mourn their lost estate as they lean against the wall amid rank grass, and stretch their long necks to the sky, as do the dogs that howl (fig. 7 above).

The detail at Blois is very interesting. It is chiefly of two periods, of Louis XII., and François I. There is also some work of the thirteenth century, and some by Mansard which offers few attractions by the side of its more interesting neighbours. The facetiæ of the fifteenth century were exceedingly robust, not to say coarse; and the humour of the "Cent Nouvelles Nouvelles" finds its counterpart in some of the carving of the main front at Blois. The carvers of the Renaissance observed a greater restraint, and the work of François I. abounds in beautiful, delicate and spirited design,—design which to-day is reproduced in *faience* and in metal-work to such an extent as, apparently, to require two special industries to supply the demand for plates and articles of jewellery.

The château is, of course, the great attraction at Blois, but the town offers other buildings of interest. Between the château and the river lies the Church of St. Nicolas, formerly St. Laumer, a very fine structure of the twelfth century, with an interesting early dome over the crossing of nave and transepts, and with capitals in which classic feeling is visibly retained. The building is well worth inspection, both on account of its fine proportions, and because here one sees, what one can hardly be said to see in England, Gothic that has evidently not yet freed itself from the leading-strings of its parent Classic. The cathedral is, like that at Orleans, largely of posthumous Gothic; but the towers are distinctly Classic, with columns and entablatures breaking round them, and a curious feature is the introduction of nervous Gothic gargoyles projecting from the angles of the Classic cornice. The situation of Blois, on a high bank of the river, gives rise to many steep, winding streets, which are, as usual, extremely narrow. The effect is picturesque, though a little smelly. Here and there occurs a good timber front of the fifteenth century, or a stone house of the sixteenth, while the course of the ancient walls of the town can still be easily traced by masses of masonry, fragments of towers, or, where these are gone, by the narrow curved streets which seem to have followed the windings of the wall.

A few miles below Blois, and high up on the other bank of the river, lies the Château de Chaumont, which may have suggested to Scott the description of the Château de Hautlieu, in his capital introduction to Quentin Durward. But the one is not the the other. Chaumont was never so dilapidated as Scott makes Hautlieu, not even though they are rebuilding a whole wing of the real château. It certainly is a shock, when one is in search of the ancient ways of doing things, to be confronted by an immense area of white stone blazing between serried ranks of scaffold poles; to pass over a brand-new draw-bridge, and find lying against the hoarding, plaster models of antique-flavoured grotesques not yet free from the straw in which they were packed in Paris. But, stay, O querulous sightseer, and either hold your tongue, or hold your hand when restorations fall in *your* way. Chaumont was once the residence of Catherine de Medicis; here, too, she watched the stars, as she did at Blois; but she wearied of the place, and compelled an exchange with Diana of Poictiers, who reluctantly gave her Chenonceaux in return. The château is built round three

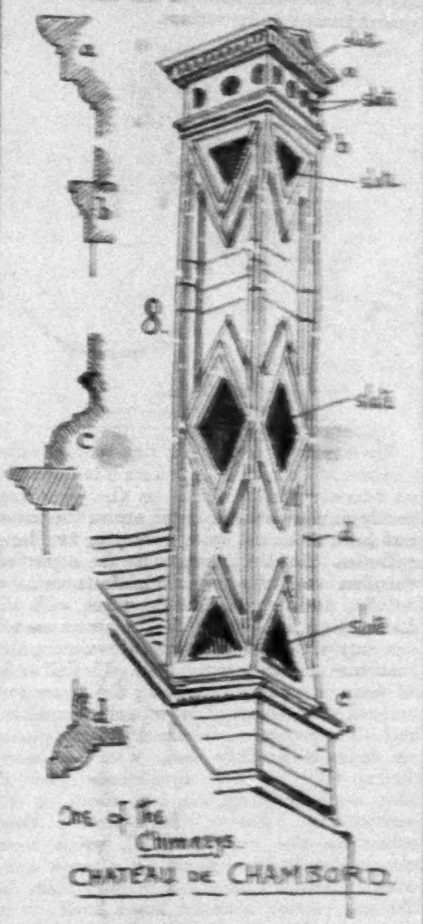
sides of a square, the fourth being open, and affording a wide view across the Loire; and it is garnished with a large number of the round towers with conical roofs, which impart so much of their character to the châteaux of the Loire. The detail is of the usual kind, the most notable feature being the circular staircase already illustrated. There is also a good deal of interest to be found in the chapel. Considering the number of hands through which the place has passed, and the fact that for some time it was a china factory, we ought perhaps to be thankful that so much is left, and to be grateful to the accomplished architect who is rebuilding a portion of it in the fashion in which he thinks it originally was, or ought to have been, built.

To an English eye all these French châteaux lose much of the charm which ought to be theirs by reason of the treatment of their surroundings. We are accustomed to see our old mansions in a fair setting of velvet turf, and bright flowers, and noble trees. They order things otherwise in France. Trees they have, it is true, and at Chaumont they have a cement tree and rustic bridge, fashioned on a framework of iron, and so like nature as to be the admiration of all beholders. But the flowers they forget or neglect, and they make hay on what should be their lawns. At Chaumont men and women were busy on the grass between the gravel walks and even up to the walls of the chateau. At Chambord, all round the princely palace the grass was marked in lots for sale to whomsoever would bid the best price.

The *triste* air that Chambord wears is doubtless owing largely to this thrifty expedient, but much of it to the disposition of the place itself. The plain range of low buildings that encloses the courtyard, the arid waste of loose gravel that forms the court itself, the absence of any endeavour to harmonise the building with its surroundings, all combine to deprive it of living human interest and to render it as dull as an architectural model in a museum. Compare it for a moment with Montacute or Rushton. It is much larger, cost vastly more, has ten times as much carving, and is as unattractive in comparison as a discourse on divinity by the side of a number of the old "Spectator."

And yet Chambord has had an eventful history. It was begun by François I. in the year 1526, and was the model, or source of inspiration, for most of the châteaux of the Renaissance in France. Louis XIV. filled it with his splendour till he left it for Versailles. The empty hall is still pointed out where he witnessed the first performance of Molière's *Bourgeois gentilhomme*. From its terrace Marshall Saxe used to review a regiment of horse by way of solace in his declining years. It was plundered at the Revolution, and given by Napoleon to the Prince de Wagram, from whose widow it was purchased by public subscription and presented to the Comte de Chambord, whose heirs now possess it.

When one leaves the general appearance to examine the detail, one is struck with admiration at every turn—it is so profuse and so varied. The chimneys, the dormers, the turrets, and, above all, the great central lantern, are covered with delicately carved medallions, and corbels, and caps, and finials. Niches with the shell ornament by way of canopy; pediments with heraldic shields and ribands and the ubiquitous salamander; chimneys crowned with lacelike carving, far too minute to be seen so far aloft; all these meet one at every turn. The funds of three successive monarchs were devoted to the work; so there was some scope for the Universal Carver of the period. If anything, the ornament is a little overdone: the eye is wearied, and the brain confused with the multitude of chimneys and turrets and dormers. One of each would be enough to secure the eternal fame of an ordinary house. And all this wealth of detail breaks forth only at the parapet: all below that is plain ashlar, save for a few pilasters and windows and arched balconies. The plan of Chambord alone would make it picturesque. The plain surfaces of the great circular towers round which the shadows creep all day, the constant continuous of the arcades, and the winding strings of the staircase turrets are themselves elements of a striking group, but compared with the wilderness of ornament which adorns the roof, they sink into insignificance. Amid all this splendour of carving, it is curious to find how much reliance for effect has been placed upon the feeble device of nailing slates in lozenges and circles, and by way of filling up panels (fig. 8),—a means of decoration



which entails much repair and a constant appearance of neglect, as the loss of a single slate visibly spoils the figure of which it formed a part.

Of all the staircases which this district affords, the great staircase at Chambord is the most elaborate. It consists, indeed, of two, winding simultaneously round a great hollow newel, or enclosed well, some 10 ft. or so across. The diameter is large enough to allow the two staircases to serve the same floors, starting and landing on opposite sides of the well. The walls of the well are pierced, so that, as it has been said by many admiring writers, two people can ascend and descend at the same time without ever meeting, and with only a passing glimpse of each other. Above the flat at the level of the parapets, this wide well is carried up as a turret stair to the top of the great lantern which crowns the whole work. In spite of all its drawbacks, however, Chambord well deserves the title bestowed by the guide-book of "la merveille de la Renaissance."

Perhaps, of the three chief towns of this district, Tours is the most interesting. The cathedral is fine, and the town itself is largely made up of ancient houses abutting on narrow streets, in which, along with most potent smells, one can inhale not a little of the atmosphere of four centuries ago. Things were newer then and in better repair, but their main forms have altered little, and from some of the paved lanes, not wide enough for causeways, you can step into little courtyards (fig. 6, lithograph) that have scarcely changed since they were built. There in one corner is the winding staircase of wood, under a roof but otherwise open; close by, in another corner (for the yard is very small) is the well, with a stone head and a wooden windlass; near to it (far too near to suit our sanitary officers) is the drain, leading—whither? Immediately behind us, as we sit, is the other side of yard, and above us from a small patch of sky fall the fierce rays of the sun, lighting up the squalor which has settled down these many years on the picturesque half-timber walls. There are plenty of such courtyards in Tours, if you will only dive into dark entries; and in the search for that which has not changed, you will see much that has undergone notable vicissitudes. Here is a turret once corbelled out over a street, but now cut back to the wall line, and reduced to half its former size; there are the stone labels of an ancient mansion, worn away by packages hauled up and down by a crane,—for the place is now a warehouse; yonder is a coach-house, enclosing a grand stone pillar that still bears shields of arms and some of the little cupids that sprang up in such thousands during the sixteenth century. Wherever you go, you meet at every step some mark of a bygone age. Eventually, no doubt (if you have a guide-book), you will find yourself in the house called after Tristran l'Hermite, the hangman of Louis XI., owing probably to the fact that, amid the various mouldings, one is fashioned like a rope. The house is of brick, and so is the circular staircase, with its newel and steps cleverly contrived on a kind of skew-vaulting, that winds round the newel. Of course, there is said to be an oubliette, and from the summit of the turret signals used to be made to the towers of Plessis-les-Tours; but legends are often fitted to localities without much exercise of the reasoning faculties, and in these cases the least said (in a foreign tongue) the soonest mended. Not far from this house, in a little open space, is the fountain de Beaune, well worth examination for the spirit and delicacy of its carving.

The way from this fountain to the cathedral passes across the site of the Abbey Church of St. Martin, of which nothing is now left but two towers, one on one side of the street, and the other at some distance on the other. These stood at the west end of the nave and the north end of the north transept, and some idea of the vast size of the abbey may thus be gathered. Its fame was proportionate to its magnitude, and it was this sacred edifice, or, rather, its predecessor on the same spot, which did much for the making of Tours,—for to it flocked thousands of pilgrims, and the reputation of the shrine of St. Martin gradually gathered round it a town as large as the ancient city of Tours, to which it was adjacent. The division between the two towns is now quite obliterated, and a matter merely of historical interest. The cathedral is an interesting building, of all styles from the twelfth century to the sixteenth, during which long interval it was continually growing. The choir is of vigorous Early French work, the western towers are strongly tinged with Renaissance, to which period belongs the charming open lantern that crowns the staircase of the southern tower. The north tower also has its peculiar attraction, the *escalier Royal* (fig. 10, lithograph), an open, circular staircase, supported on the intersection of eight thick skeleton vaulting-ribs at the parapet level. The north tower is finished at the top with a vaulted dome, on the keystone of which is decipherable part of an inscription in French and Latin, giving the date of completion (1507):—AN . MIL . V . ET . VII . [illegible] . . . . . From the parapet of the tower a fine view can be obtained of the town. All around is a wilderness of ancient roofs intersected with narrow, crooked streets; here and there are the trees of a garden, and yonder the continuous line of foliage that shades the new boulevard—above the roofs rise many towers, notable among them the two that mark the site of St. Martin's Abbey church; near them, hardly to be distinguished, is the turret called after Tristan l'Hermite; and

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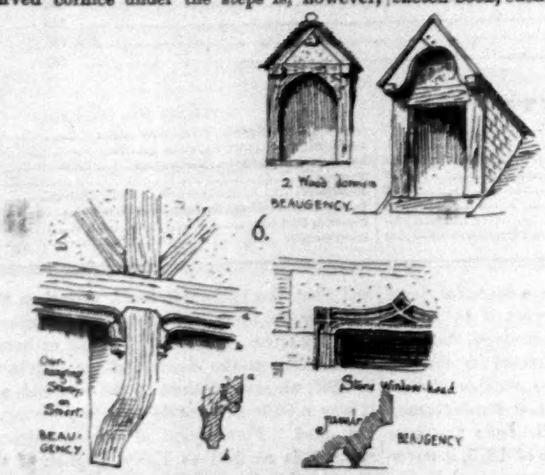
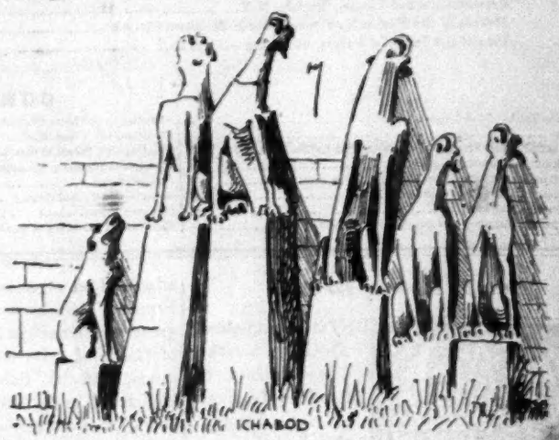




It is obvious from these few examples that the variety of ways in which the dominating idea of a wide circular staircase can be treated is very large; and, as a matter of fact, no two examples are treated exactly alike. The finish of the newel at the top gives rise to much good detail. Sometimes it is treated as part of the balustrade wall, and merely coped at the same height; but oftener it is carried up, crowned with a capital, and made the central shaft from which vaulting ribs are sprung on to the outside wall, as at Blois. There is one unfortunate result from carrying the main lines in a raking manner up the walls, and that is that the designers have thought it necessary to put the door heads on the rake as well (as shown in the view from Chaumont). This is undoubtedly an awkward expedient; and indeed the difficulty of harmonising the raking lines of the stairs with the horizontal lines which must necessarily occur at the top in connexion with the roof, is one which happened in every case and which was seldom satisfactorily surmounted.

If any one wishes to gain some idea of the appearance of a fifteenth-century town, let him go to Beaugency, which lies between Orleans and Blois. The direct road from the station leads into the more modern portion of the little town, but a very short walk will take the visitor into streets and alleys where every house has some feature of the fifteenth or sixteenth century. The streets are of the same width now as then; they have the same turns and the same declivities. The outlooks are somewhat altered, no doubt, for six out of seven of the gates are gone; the castle, built by "Le beau Dunois," has been shorn of much of its beauty, and converted into a workhouse; the great donjon, or "tour de César," now rears itself up only some 70 out of its ancient 115 ft; the walls of the town merely remain in places, but the imagination has no great difficulty in filling the gaps and in picturing the ancient aspect of the place when the castle commanded the long bridge that straggled across the Loire on its narrow pointed arches, of which some still remain, and the walls presented their sullen towers to the stranger, while above the gabled houses, with their good stone fronts wherein all the windows and doors were carefully wrought, rose the great square mass of the gloomy "tour de César."

From Beaugency the broad, brown Loire flows swiftly on to Blois, whither the far-famed château attracts many, many visitors. To make the round of a show-place in England with a large party to whom the guide drones out his oft-told tale is bad enough; but to do the same when the dismal tidings are told in a foreign tongue is to endure the boredom without gleaning the information which may be held as an inadequate compensation. To this ordeal, however, the visitor is subjected at Blois, and through many rooms he is taken, all swept and garnished, and restored and decorated, in a manner as thorough as it is beautiful; and beautiful the visitor admits it to be, though his sentimental soul shrinks from its evident newness and sighs for the actual walls that witnessed the stirring events briefly narrated by the guide. Here stood the Duke of Guise when he was summoned to his last interview with Henri III., this was the room he crossed, there was the door which was locked so that he might be compelled to pass into a room convenient for his murderers; there he received the first blow, here he came to die, yonder is the room where meanwhile two monks, in ignorance of the nature of the deed, were offering up prayers for the success of "an enterprise undertaken for the peace of the Kingdom." Then, again, this was the window from which the captive queen, Marie de Medicis escaped by letting herself down by a rope; that was the boudoir of Catherine de Medicis, and yonder was the observatory where she sought guidance from the stars. But the stars, if in their eternal revolutions they can recollect so fleeting an interval as the life of Catherine de Medicis, would hardly recognise her observatory to-day; the parapet to which the fair fingers of Queen Marie clung is now new and white; everything is beautifully and learnedly restored; large masses of white stone obtrude themselves on the eye that loves to decipher history for itself among time-worn devices, and they distil from it a tear to mingle with those shed by a row of disconsolate gargoyles, which seem to mourn their lost estate as they lean against the wall amid rank grass, and stretch their long necks to the sky, as do the dogs that howl (fig. 7 above).

The detail at Blois is very interesting. It is chiefly of two periods, of Louis XII., and François I. There is also some work of the thirteenth century, and some by Mansard which offers few attractions by the side of its more interesting neighbours. The facetiæ of the fifteenth century were exceedingly robust, not to say coarse; and the humour of the "Cent Nouvelles Nouvelles" finds its counterpart in some of the carving of the main front at Blois. The carvers of the Renaissance observed a greater restraint, and the work of François I. abounds in beautiful, delicate and spirited design,—design which to-day is reproduced in *faience* and in metal-work to such an extent as, apparently, to require two special industries to supply the demand for plates and articles of jewellery.

The château is, of course, the great attraction at Blois, but the town offers other buildings of interest. Between the château and the river lies the Church of St. Nicolas, formerly St. Laumer, a very fine structure of the twelfth century, with an interesting early dome over the crossing of nave and transepts, and with capitals in which classic feeling is visibly retained. The building is well worth inspection, both on account of its fine proportions, and because here one sees, what one can hardly be said to see in England, Gothic that has evidently not yet freed itself from the leading-strings of its parent Classic. The cathedral is, like that at Orleans, largely of posthumous Gothic; but the towers are distinctly Classic, with columns and entablatures breaking round them, and a curious feature is the introduction of nervous Gothic gargoyles projecting from the angles of the Classic cornice. The situation of Blois, on a high bank of the river, gives rise to many steep, winding streets, which are, as usual, extremely narrow. The effect is picturesque, though a little smelly. Here and there occurs a good timber front of the fifteenth century, or a stone house of the sixteenth, while the course of the ancient walls of the town can still be easily traced by masses of masonry, fragments of towers, or, where these are gone, by the narrow curved streets which seem to have followed the windings of the wall.

A few miles below Blois, and high up on the other bank of the river, lies the Château de Chaumont, which may have suggested to Scott the description of the Château de Hautlieu, in his capital introduction to Quentin Durward. But the one is not the the other. Chaumont was never so dilapidated as Scott makes Hautlieu, not even though they are rebuilding a whole wing of the real château. It certainly is a shock, when one is in search of the ancient ways of doing things, to be confronted by an immense area of white stone blazing between serried ranks of scaffold poles; to pass over a brand-new draw-bridge, and find lying against the hoarding, plaster models of antique-flavoured grotesques not yet free from the straw in which they were packed in Paris. But, stay, O querulous sightseer, and either hold your tongue, or hold your hand when restorations fall in *your* way. Chaumont was once the residence of Catherine de Medicis; here, too, she watched the stars, as she did at Blois; but she wearied of the place, and compelled an exchange with Diana of Poictiers, who reluctantly gave her Chenonceaux in return. The château is built round three

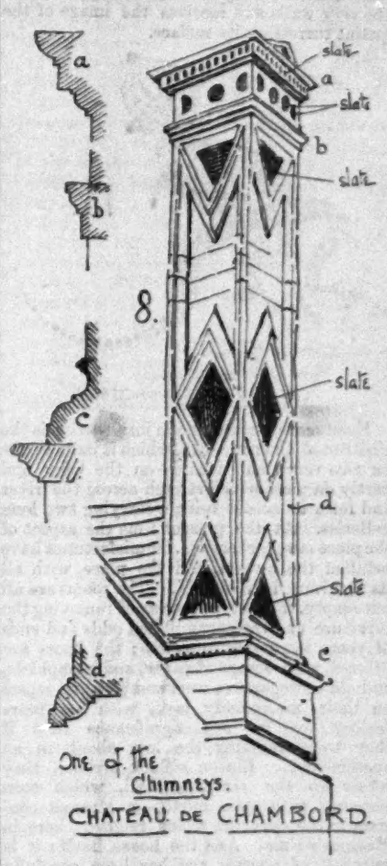
sides of a square, the fourth being open, and affording a wide view across the Loire; and it is garnished with a large number of the round towers with conical roofs, which impart so much of their character to the châteaux of the Loire. The detail is of the usual kind, the most notable feature being the circular staircase already illustrated. There is also a good deal of interest to be found in the chapel. Considering the number of hands through which the place has passed, and the fact that for some time it was a china factory, we ought perhaps to be thankful that so much is left, and to be grateful to the accomplished architect who is rebuilding a portion of it in the fashion in which he thinks it originally was, or ought to have been, built.

To an English eye all these French châteaux lose much of the charm which ought to be theirs by reason of the treatment of their surroundings. We are accustomed to see our old mansions in a fair setting of velvet turf, and bright flowers, and noble trees. They order things otherwise in France. Trees they have, it is true, and at Chaumont they have a cement tree and rustic bridge, fashioned on a framework of iron, and so like nature as to be the admiration of all beholders. But the flowers they forget or neglect, and they make hay on what should be their lawns. At Chaumont men and women were busy on the grass between the gravel walks and even up to the walls of the chateau. At Chambord, all round the princely palace the grass was marked in lots for sale to whomsoever would bid the best price.

The *triste* air that Chambord wears is doubtless owing largely to this thrifty expedient, but much of it to the disposition of the place itself. The plain range of low buildings that encloses the courtyard, the arid waste of loose gravel that forms the court itself, the absence of any endeavour to harmonise the building with its surroundings, all combine to deprive it of living human interest and to render it as dull as an architectural model in a museum. Compare it for a moment with Montacute or Rushton. It is much larger, cost vastly more, has ten times as much carving, and is as unattractive in comparison as a discourse on divinity by the side of a number of the old "Spectator."

And yet Chambord has had an eventful history. It was begun by François I. in the year 1526, and was the model, or source of inspiration, for most of the châteaux of the Renaissance in France. Louis XIV. filled it with his splendour till he left it for Versailles. The empty hall is still pointed out where he witnessed the first performance of Molière's *Bourgeois gentilhomme*. From its terrace Marshall Saxe used to review a regiment of horse by way of solace in his declining years. It was plundered at the Revolution, and given by Napoleon to the Prince de Wagram, from whose widow it was purchased by public subscription and presented to the Comte de Chambord, whose heirs now possess it.

When one leaves the general appearance to examine the detail, one is struck with admiration at every turn—it is so profuse and so varied. The chimneys, the dormers, the turrets, and, above all, the great central lantern, are covered with delicately carved medallions, and corbels, and caps, and finials. Niches with the shell ornament by way of canopy; pediments with heraldic shields and ribands and the ubiquitous salamander; chimneys crowned with lacelike carving, far too minute to be seen so far aloft; all these meet one at every turn. The funds of three successive monarchs were devoted to the work; so there was some scope for the Universal Carver of the period. If anything, the ornament is a little overdone: the eye is wearied, and the brain confused with the multitude of chimneys and turrets and dormers. One of each would be enough to secure the eternal fame of an ordinary house. And all this wealth of detail breaks forth only at the parapet: all below that is plain ashlar, save for a few pilasters and windows and arched balconies. The plan of Chambord alone would make it picturesque. The plain surfaces of the great circular towers round which the shadows creep all day, the constant sombreness of the arcades, and the winding strings of the staircase turrets are themselves elements of a striking group, but compared with the wilderness of ornament which adorns the roof, they sink into insignificance. Amid all this splendour of carving, it is curious to find how much reliance for effect has been placed upon the feeble device of nailing slates in lozenges and circles, and by way of filling up panels (fig. 8),—a means of decoration



which entails much repair and a constant appearance of neglect, as the loss of a single slate visibly spoils the figure of which it formed a part.

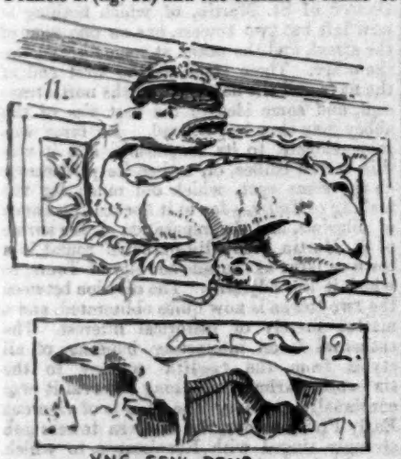
Of all the staircases which this district affords, the great staircase at Chambord is the most elaborate. It consists, indeed, of two, winding simultaneously round a great hollow newel, or enclosed well, some 10 ft. or so across. The diameter is large enough to allow the two staircases to serve the same floors, starting and landing on opposite sides of the well. The walls of the well are pierced, so that, as it has been said by many admiring writers, two people can ascend and descend at the same time without ever meeting, and with only a passing glimpse of each other. Above the flat at the level of the parapets, this wide well is carried up as a turret stair to the top of the great lantern which crowns the whole work. In spite of all its drawbacks, however, Chambord well deserves the title bestowed by the guide-book of "la merveille de la Renaissance."

Perhaps, of the three chief towns of this district, Tours is the most interesting. The cathedral is fine, and the town itself is largely made up of ancient houses abutting on narrow streets, in which, along with most potent smells, one can inhale not a little of the atmosphere of four centuries ago. Things were newer then and in better repair, but their main forms have altered little, and from some of the paved lanes, not wide enough for causeways, you can step into little courtyards (fig. 9, lithograph) that have scarcely changed since they were built. There in one corner is the winding staircase of wood, under a roof but otherwise open; close by, in another corner (for the yard is very small) is the well, with a stone head and a wooden windlass; near to it (far too near to suit our sanitary officers) is the drain, leading—whither? Immediately behind us, as we sit, is the other side of yard, and above us from a small patch of sky, fall the fierce rays of the sun, lighting up the squalor which has settled down these many years on the picturesque half-timber walls. There are plenty of such courtyards in Tours, if you will only dive into dark entries; and in the search for that which has not changed, you will see much that has undergone notable vicissitudes. Here is a turret once corbelled out over a street, but now cut back to the wall line, and reduced to half its former size; there are the stone labels of an ancient mansion, worn away by packages hauled up and down by a crane,—for the place is now a warehouse; yonder is a coach-house, enclosing a grand stone pillar that still bears shields of arms and some of the little cupids that sprang up in such thousands during the sixteenth century. Wherever you go, you meet at every step some mark of a bygone age. Eventually, no doubt (if you have a guide-book), you will find yourself in the house called after Tristran l'Hermite, the hangman of Louis XI., owing probably to the fact that, amid the various mouldings, one is fashioned like a rope. The house is of brick, and so is the circular staircase, with its newel and steps cleverly contrived on a kind of skew-vaulting, that winds round the newel. Of course, there is said to be an oubliette, and from the summit of the turret signals used to be made to the towers of Plessis-les-Tours; but legends are often fitted to localities without much exercise of the reasoning faculties, and in these cases the least said (in a foreign tongue) the soonest mended. Not far from this house, in a little open space, is the fountain de Beaune, well worth examination for the spirit and delicacy of its carving.

The way from this fountain to the cathedral passes across the site of the Abbey Church of St. Martin, of which nothing is now left but two towers, one on one side of the street, and the other at some distance on the other. These stood at the west end of the nave and the north end of the north transept, and some idea of the vast size of the abbey may thus be gathered. Its fame was proportionate to its magnitude, and it was this sacred edifice, or, rather, its predecessor on the same spot, which did much for the making of Tours,—for to it flocked thousands of pilgrims, and the reputation of the shrine of St. Martin gradually gathered round it a town as large as the ancient city of Tours, to which it was adjacent. The division between the two towns is now quite obliterated, and a matter merely of historical interest. The cathedral is an interesting building, of all styles from the twelfth century to the sixteenth, during which long interval it was continually growing. The choir is of vigorous Early French work, the western towers are strongly tinged with Renaissance, to which period belongs the charming open lantern that crowns the staircase of the southern tower. The north tower also has its peculiar attraction, the *escalier Royal* (fig. 10, lithograph), an open, circular staircase, supported on the intersection of eight thick skeleton vaulting-ribs at the parapet level. This north tower is finished at the top with a vaulted dome, on the keystone of which is decipherable part of an inscription in French and Latin, giving the date of completion (1507): AN MIL . V . ET . VII . FVTFAICT . CE . NOBLE . CLOCHER . E . . . . NO . PETM . EST . IHEVD . ET . EST . MIRABILE . OCLIS . . . . From the parapet of the tower a fine view can be obtained of the town. All round is a wilderness of ancient roofs intersected with narrow, crooked streets; here and there are the trees of a garden, and yonder the continuous line of foliage that shades the new boulevard—above the roofs rise many towers, notable among them the two that mark the site of St. Martin's Abbey church; near them, hardly to be distinguished, is the turret called after Tristan l'Hermite; and

far away, by a shining roof, we are told Plessis-les-Tours can be seen. Close beneath our feet is the Tour de Guise, interesting to an Englishman as being the last relic of a Royal palace built by Henry II. of England; among the houses, somewhere by the Towers of St. Martin, are the remains of the cloisters of that church, a small but beautiful piece of Renaissance work, now enclosed in the buildings of a convent. All along one side of the town flows the broad river, spanned by a long bridge across which in January, 1871, the German army entered the town.

From Tours two more notable châteaux are reached, Azay-le-Rideau* and Chenonceaux, as well as the memorable town of Loches. Azay-le-Rideau is a small and rather curious little market-town on the banks of the Indre. At the end of a narrow street are the gates of the château, which lead into an irregular yard, across which the visitor finds his way to a wooden bridge, and so to the front of the house. Though smaller than the châteaux already visited, it is quite as pleasing, and far less overpowering in the multiplicity of its carved subjects. It is very simple in plan, being merely L shaped, and at each corner rises a circular tower crowned with a steep conical roof. The windows are ornamented with the usual pilasters, carved in low relief, and the top story is brought forward on a row of bold corbels, recalling the methods of military architecture already almost obsolete when this house was built. The front entrance is the most richly-treated feature. It consists of two arches, over which are grouped the double windows of the staircase, two stories high. As these windows (being on the half-landings) do not range with those of the main floors, they are enclosed between pilasters, and thus divided from the main front; they are formed into a feature by themselves, and with their niches and carved friezes and panels give great richness and importance to the entrance. In the panels beneath the lower windows are the salamander of Francis I. (fig. 11) and the ermine of Anne of



Brittany (fig. 12). The former has the motto, "Nutrisco et exstinguo," and the latter "Ung seul desir." There are two explanations given of this device and motto of Francis. One is that it is a misreading of the motto on a medal which was struck in his honour in 1504, which shows a salamander in flames and the Italian words, "Notrisco. albuono. stingo. elreo., MCCCCCIIII." (I nourish the good and extinguish the bad); and the other is that he adopted the salamander as denoting his ardent disposition, and the Latin motto, "Nutrisco et exstinguo," as implying that while nourishing his passions he could at any time extinguish them.

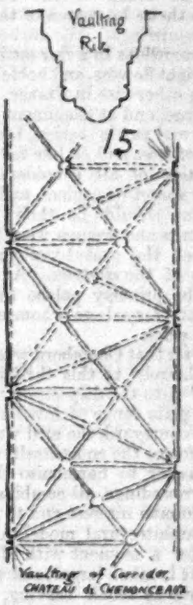
The interior of the château contains many objects of interest in the way of furniture and pictures; and the staircase is not in a circular tower, but consists of two straight flights to each floor, lighted, as already said, on the half-landing by the windows over the front door. In this respect it is like the staircase at Chenonceaux, but while the vaulting of that is enriched at the intersections with bosses only, this at Azay-le-Rideau has long ornamental pendants, which give it a very rich appearance. The steps themselves are much worn away, and as they are slippery with long use, the pleasure of gazing at the ceiling is closely allied to the pain of taking a sudden seat on the edge of a step. The situation of the château near the river adds to its charm, as some of the water is utilised to form a small lake, part of which ripples up to the very walls and receives the image of the quaint turrets on its surface.

Even more picturesque in its situation is the Château of Chenonceaux, which is built partly on two very small islands on the Cher and partly on piers which stretch across the river and form an actual bridge, carrying two long galleries. At the present time the aspect of the place is very cheerless, for misfortunes have befallen the owners, and the place, with all its furniture, is to be sold. The rooms are all but empty, the tedious process of removing the furniture and the accumulated odds and ends of years is coming to a close; the floors are littered with scraps of paper, and pamphlets, and old newspapers; workmen pass and repass on their melancholy task, with no more feeling for its sad significance than if they were dragging the lots about in an auction-room. Eleven o'clock arrived, they repair to the servants' hall, which soon resounds with their mirth,—a strange contrast to the decorum which reigned there in Madame's time. And the house itself: it is restored, of course, and has been carefully kept up, the very pains which have been bestowed upon it only rendering its present condition the more melancholy. From one empty floor to another the visitor can wander at his will; all the rooms are open to his profane step, from the bath-room with its poor frescoes, bad in drawing and broad in taste, to the long gallery, where the ceiling was undergoing a process of grand decoration only a month or two ago. And such a process! One is almost thankful to find it cut short. The room is more than 100 ft. long, by some 16 or 20 wide. The whole ceiling is covered with a nightmare of the clever French art of to-day.

It represents, in divisions which run confusedly into each other, the various countries of the world, specimens of whose inhabitants, with appropriate surroundings, are divided from each other by real objects, such as spears and assegais, and palm-leaves and many pieces of looking-glass, all secured to the ceiling. This mixture of the real and the ideal is bewildering enough in itself, without making the imagination pass at a bound (as it must) from Paris to Pekin, or Trouville to the Transvaal. And yet the whole thing is done with wonderful cleverness and skill, and we may at least be grateful that modern French art has not given us on this ceiling the acres of the gory and the nude with which it delights to cover the walls of the *Salon*.

The depressing effect of the château is not relieved by going to the large, neglected Italian garden, where decay must have set in long ago. But when it was cared for, and kept in good order, when the rank weeds did not half clothe the surface, and when the parapet walls were entire, the effect must have been very fine. The parapet walls are treated in a curious but effective manner. They are covered with a reddish stucco into which black cinders have been stuck while wet, in a series of exceedingly elegant designs. The process, however, would be somewhat costly, for, although the materials are cheap, it would require a trained and skilful hand to arrange them (fig. 13).

In spite of the unsparing restoration that has taken place, there is much that is old and genuine left in the château, such as ironwork and woodwork, and sixteenth-century wall-coverings. The staircase is (as already noticed) treated in a different way from most of those in the district, being in straight flights returning on each other (fig. 14, lithograph). The plan of the vaulting of the entrance corridor, too, is rather unusual (fig. 15). The



whole place, with its drawbridges, and turrets, and its isolated tower, with the water flowing beneath it, its landing-stage, and the long lines of its Italian garden, forms a group as picturesque as it is uncommon; and withal, the Englishman, as he gazes upon it, feels that in his own land are things he likes even better.

Between Chenonceaux and Tours is the little town of Bléré, also on the Cher, and on the outskirts of the town is to be seen a curious monument of the Renaissance, called La Chapelle du Marché (see separate lithograph plate). This, at least, is not restored: it bears on its face and all about it marks of the uninterrupted neglect of a long series of years. It is, however, under official patronage, for the key is kept at the Mairie, and so long as wilful destruction is averted, it tells its tale, and will tell it, as well as, and better than, if the most learned *savant* from Paris were brought down to set it to rights. It is a two-storied structure; the lower one is vaulted, and was used as a chapel; the upper one is domed and is inaccessible, no traces of any means of access being visible. The detail is all of good Renaissance character, the carving of the capitals and the piscina being of the usual beautiful delicacy. It was erected as a memorial to Guillaume de Seigne in 1526, and, as he was Receiver-General of the Artillery, the doorway is carved with cannons shooting forth flames, and with panels of cannon-balls and flames. The building, though small, is of considerable interest.

Along the valley of the Cher, past many dwellings cut in the rock through which, ages ago, the river slowly made its channel, the railway finds its way back to Tours. But as we leave this fertile district where the acacia blossoms scent the air, as we recall the princely pile of Chambord, the terraces of Chaumont high above the Loire, the rooms at Blois empty of everything but gloomy memories, as we think of the shadows that

* A view of Azay-le-Rideau, reproduced from a photograph, was given in the *Builder* for March 30 this year.

lie round Azay-le-Rideau, or the air of desolation that envelopes romantic Chenonceaux, we feel that in our own land we have places no less beautiful, and we look forward to driving once more in quest of ancient manor-houses through quiet lanes amid the fragrance of our English bean-fields.

NOTES.

NOT the least important of the many schemes which have been undertaken by the Post Office for the public benefit comes into operation on Monday next. We refer to the Telegraph Money Orders, the issue of which will, however, for the present, be confined to London, Liverpool, Manchester, and about a dozen other important centres. They will be a somewhat expensive luxury,—the commission being exactly double that upon ordinary Inland Money Orders,—and will not be issued for a greater amount than 10*l*. In addition to the increased commission, a charge will be made, at the ordinary Inland rate, "for the official telegram authorising payment at the office of payment, and for the repetition thereof, the minimum being 9d." The higher scale for commission may be easily understood, but the additional charge for transmission, &c., will probably prevent many from making use of the new system. The charge for the repetition of the message might very well be borne by the Department, seeing that it is quite as important to them as to the remitter that correct particulars should be telegraphed. Of course, any message to the payee concerning the remittance must be paid for by the sender at the usual rate; and, altogether, it seems likely that the system will be rather too costly to be very extensively adopted. At the same time, as it provides a ready means for the immediate remittance of small sums, certain kinds of business transactions will be facilitated, and if the experiment proves successful in the towns selected, it will doubtless be extended.

THE Royal Scottish Academy has applied for a new Charter, and, amongst the reasons for that request being granted, it is stated that "the Academy has, since the existing Charter was granted, carried its objects into effect with much success." Several letters have been addressed to the *Scotsman* with the object of refuting that assertion. Especial objection is taken to the manner in which the pension fund has been administered. The word "aged" has been held to apply to all members who reach the age of sixty, and not as implying that they are incapacitated or in needy circumstances, and it is alleged that members in possession of ample means have not scrupled to claim a pension, thereby decreasing the amount available for needy members and widows. The Academy, it is maintained, was established "not to enrich artists, but to advance art," and that it has not done so to the extent that might reasonably have been expected. The full designation of the body is "The Royal Scottish Academy of Painting, Sculpture, and Architecture," but amongst the three allied arts the latter two have been almost ignored. There is a life school for the painter, but no modelling class for the sculptor, or any means of instruction for the architectural student. Mr. Dick Peddie is the only architect who is an Academician, and he defends the body of which he is a member; but he meets with a plucky opponent in the person of Mr. Hippolyte J. Blanc, who is an outsider. "Painters," he says, "may have a claim to first place, but not to a monopoly, as they have at present, and as is proposed in the new Charter. Proportionate representation alone can secure what the public, and especially the art section of it, have a right to look for. Why divorce architecture till there is not one practising architect on the Academy roll? Surely the art which has given a home to the Academy for upwards of forty years—the art which makes a city, the art which lays the foundation for both sculpture and painting—should not be discarded."

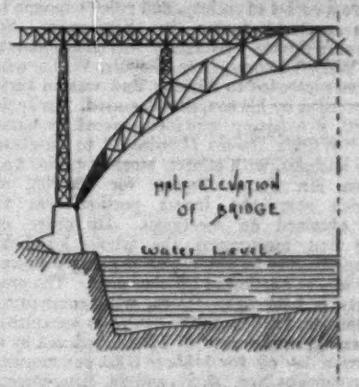
MESSRS. POWELL, of Whitefriars, had on view last week a very fine stained-glass window, circular in form, designed by Mr. Holiday, and intended for the Library of the Drew Theological Institute of Madison, New Jersey. The subject given to Mr. Holiday was "Theology," the treatment being left entirely to the artist without any further suggestion. He has represented "Theologia" as a draped female figure in a smaller circle in the centre of the window, seated on a globe and facing the spectator, the space on each side of the figure, above the globe, being filled by two angels in adoration with outspread wings. Across the circle, behind the figure but in front of the attendant angels, runs a broad inscription bar with the words,—"SICUT · EXALTANTUR · COELI · A · TERRA · SIC · EXALTATÆ · SUNT · VIÆ · MEÆ · A · VIIS · VESTRIS." Around the outer circle of the window are grouped allegorical figures as subordinate to "Theologia." In the upper portion appear "Fides," "Caritas," and "Spes"; below are on one side "Historia" and "Philosophia," on the opposite side "Scientia" and "Ars," and beneath is appropriately placed the figure of "Humilitas" leading forward by the hand a child who looks upward to the centre figure, with the motto "*Docebit · mites · vias · suas.*" The design is truly decorative in style in relation to the material, but without the slightest affectation of archaism or Mediæval stiffness; the figures are natural and free in their attitudes, but so arranged as to fill up the space well without any appearance of constraint. The warmest and richest colour is reserved for the central compartment, the rest being kept subordinate but still rich in tone. The window is one of the finest of Mr. Holiday's designs, and has been admirably carried out by Messrs. Powell from his coloured cartoon.

UNDER the heading "Floral Anachronisms in Art," Mr. Tegetmeier, in a letter in the *Field* of last week, calls attention to an amusing instance of anachronism in Mr. Dendy Sadler's clever picture, in the last Royal Academy, "The Widow's Birthday." He says:—

"The gentlemen are all three attired in costumes such as were worn towards the close of the last century, say from 1770 to 1800. Trained over the front of the widow's house is a fine specimen of Clematis jackmanii. It is quite characteristic, and admirably painted. This beautiful clematis is a hybrid, which was produced, about 1855, by crossing Clematis viticella with C. lanuginosa, the latter species having been brought to Europe from China for the first time in 1851, by Mr. Fortune. The clematis portrayed in the picture did not exist till some seventy years after the date at which the costumes of the gentlemen were worn. Again, Clematis jackmanii blooms in July and the beginning of August; by the end of the latter month the flowers are over and the petals shed. In the picture the plant is in full bloom, yet one of the gentlemen bears a brace of partridges, which indicates September."

The partridges along with the flower in bloom was a great slip; in regard to the first part of the charge, we do not see that painters are bound to know the history of gardening. The two mistakes are of a different order. The flower might just as well have been produced a century earlier, if gardeners had been as expert and enterprising as in later times; but it could not have bloomed in partridge-shooting time. An expert critic could probably pick out many more instances of the inattention of painters to the actual facts of what they are pourtraying. We will give one mechanical error from the last Academy; in a picture representing men at the pump on board a ship the pump is shown as a double plunger one, worked by a crosshead handle, one stroke being down while the other is up: but the water is shown pouring out of the nozzle on the down stroke side as freely as out of the other side, the artist having contented himself with painting a pump and water pouring out, without thinking of the *modus operandi*.

AMONG the small pavilions of various kinds which skirt the char-à-banc railway at Paris, at the Champ de Mars end, is a neat-looking house bearing the name of "Eiffel." This, which is one small compartment with a central passage and a door at each end, appears to be intended as a compendium of M. Eiffel's engineering works previous to the Eiffel Tower; but the show is not very extensive. It principally consists of one model and some drawings illustrating a couple of large iron bridges constructed on a special plan of M. Eiffel's, and which we presume illustrate that use of arched ribs which he claimed the other day to have invented, and to have applied to the lowest story of the Eiffel Tower. A sketch of one of these, made from the diagrams exhibited, will indicate better than words the nature of the work



illustrated. This is the rough elevation of the bridge erected by M. Eiffel over the Douro, in which an arched form is combined with a straight girder. The system of building the curvilinear girder from a very narrow base looks very workmanlike in the sense that it allows easily for the provision for movement of the girder under variation of temperature (as it is allowed for in the same way on the roof of the Galerie des Machines); it has however the objection of concentrating an enormous weight on a very small impost area. The manner in which the masonry pier is built to provide abutment for the curved rib is shown in the enlarged sketch of the pier.

These bridges have a bold and very original appearance, but we hear that they have not proved entirely satisfactory in execution; that they sway to a certain extent, which indicates an error in theory of construction, and that bolts have been known to drop from them into the vallies beneath, with, of course, considerable chance of injury to persons passing, which indicates, if not error, at least deficiency of another kind in the practice of construction.

THE following information, given by Sir H. Maxwell in the House of Commons on Tuesday evening, in answer to a question as to the condition of the roof of Westminster Hall, is we presume authentic as to its facts, and may be of interest to those of our

readers who have not noticed it in the *Times* report:—

"In answer to Mr. Isaacson, Sir H. Maxwell said,—The roof of Westminster Hall has been recently inspected and is in good condition, with some exceptions round the dormers on the eastern side. It is, however, proposed to remove these dormers shortly, and to make good any defects. There are no bolts holding the slates on the roof, the old slating having been held on by very small oak pins weighing under an ounce each, some of which, displaced at the time of the explosion, may possibly have fallen. The remainder of the slates, which were fixed after the explosion, are secured in the usual way with copper nails."

AT the death, on March 6 last, of Louisa, Countess Dowager of Kinnoul, it was stated that she was the last survivor of the lady patronesses who in a former generation gave a *cachet* to society, and ruled supreme in the assembly-rooms in King-street, St. James's-square. Almack's was since known as Willis's Rooms, from the Mr. Willis who there succeeded to Almack, and was, in turn, succeeded by his son, now deceased. In June, 1886, a company was incorporated by name of "Willis's Rooms (Limited)" to purchase the business, with effects, stock-in-trade, &c., from Mr. James Taylor for 55,000*l.*, of which sum the larger portion was to be obtained on mortgage. By order of the first mortgagees the whole leasehold property is to be put up, as a going concern, for sale at auction in October next. The property is held upon leases, with covenanted extension, for about fifty-five years unexpired, at an aggregate rent of 1,248*l.*, reduced by a portion let off for 445*l.*, to 803*l.* per annum. It comprises Nos. 26, 27, and 28, King-street, southern side. No. 27 is a picture-shop; No. 28 a wine merchant's, with part reserved for the Orleans Club billiard-rooms. No. 26, designed by Robert Mylne for Almack, contains the big hall or ball-room, 90 ft. by 42 ft., two large ante-rooms, a supper or assembly room, 45 ft. by 42 ft., with serving-rooms, offices, and the like, and a range of living-rooms above. To Almack, a Scotsman, and his connexion with the Thatched House Tavern and the present Brooks's Club, we adverted in a "Note" on December 8 last. On February 12, 1765, he opened his new rooms in King-street with an ill-attended assembly, as is described by Walpole in a letter of 14th *idem* to Lord Hertford. For particulars of the balls and routs that were celebrated at Almack's by a circle whose rigid exclusiveness is a thing of the past, our readers should turn to the pages of "Recollections of Society," by the late Lady Clementina Davies, *née* Drummond (1872), Captain Gronow's "Reminiscences" (1872), and the "Journal" of T. Raikes, and similar books. Hither removed the Dilettanti Society upon the demolition of "The Thatched House," St. James's-street; and carried their fine collection of portraits, whereof the two groups by Sir Joshua were lately placed in the new staircase at the National Gallery. Here Braham and Mrs. Billington enchanted their audiences eighty years ago; here Charles Kemble gave readings from Shakespeare; and at Willis's Rooms, in 1851, Thackeray first lectured in public, choosing for theme the English humourists, he being then at work writing "Esmond."

THE Town Council of Edinburgh have approached the Government with the object of procuring the concession of a portion of the ground behind the ornamental stone screen in front of the General Register House. This portion of the city may be looked upon as its Charing Cross, where there is a concentration of traffic from all directions. A movement with this object was made about fifty years ago, and the screen wall was then placed back several feet from its original position. Considerable opposition was raised to that proceeding, as it was by many considered that damage would be inflicted upon the fine architectural effect of the façade of the Register House, which owes much to the screen in front of it. The fears entertained were not realised, but we suspect that a further concession will have a damaging effect æsthetically. It is at the east end, at the top of Leith-street, where the congestion of traffic is most felt, and the throwing back of the screen, or its total removal, seems the only feasible means of getting over the difficulty.

THE site fixed upon for the new Scottish National Observatory is the eastern slope of Blackford Hill, immediately to the south of Edinburgh. This hill was recently acquired by the City as a place of public recreation, and the Town Council has expressed its willingness to give up the portion which may be necessary for the new buildings at the same cost per acre as was paid for it. As already stated in this place, the old observatory on the Calton Hill has been acquired by the city, and the new buildings are to contain the magnificent set of instruments presented to the nation by the Earl of Crawford.

AN archaic marble relief which has been exciting a good deal of attention in Athens is published in the new issue of the "Bulletin de Correspondance Hellénique" (xiii. v., 1889), by M. Lechat. The relief is remarkable in the first place for the admirable preservation of its ancient colour. The background has been painted blue; the hair is mostly red, but in one case brown, and the dress of the figures is partly red, partly brown. We mention the colour especially because unfortunately the reproduction is not a coloured one. Of still greater interest is the scene represented. A man walks in front, piping on the double-flute; behind him come three women figures dancing. Were this all we should have no hesitation in pronouncing the relief to represent Hermes with the three dancing nymphs,—a well-known type preserved in countless reliefs; but in the present instance there is a curious addition,—the last woman holds by the hand a diminutive male figure, possibly a child, possibly a mortal of small stature as compared to the three goddesses. M. Lechat unhesitatingly pronounces the design to be a representation of the three Graces led by Hermes; he thinks the small male figure is a mortal initiated to their dance; but M. Lechat goes rather too fast in drawing this conclusion. That the Graces were worshipped near the Propylæa we know from Pausanias, and the relief in two fragments was found not far away; but the reliefs hitherto known of the Graces represent them alone, without Hermes; the figure of the diminutive mortal joining the dance is also wholly without precedent. Be the subject what it may, the design is very interesting, and will remind many a traveller of the syrtos he may still see danced by the modern Greek peasant.

AT a sitting of the Consistory Court, in St. Paul's, on the 19th inst., Dr. Tristram, Q.C., Chancellor of the Diocese, granted a faculty for the carrying out of various improvements in the parish churchyard of St. Mary, Islington. The vicar, it seems, has undertaken to make very substantial contributions towards the building of a Mission and Parish hall, whose site he has purchased, and of a new vicarage house, both of which will abut upon the burial-ground. So a faculty was sought for the making of a new pathway through the churchyard. This pathway, like the others here, will be railed in, and be fitted with end gates. The Fire Brigade station, as we are informed, stands on the site (once the "Old Parr's Head" yard and skittle-ground) of the former vicarage whereat, during the last eleven years of his life, Dr. Johnson used to stay with the Reverend George Strahan, son to William Strahan, the King's Printer, and to whom he bequeathed his Greek testaments and Latin bibles. In this churchyard were buried his friend, John Nichols (1826), of "Literary Anecdote" fame; Richard Earlom (1822), engraver of Claude's "Liber Veritatis"; and Osborne (1763), whom Johnson chastised for impertinence. The Parish church, having a tower of brick and a stone steeple, was built in 1751-4 after the designs of Lancelot Dowbiggin, who competed with Gwyn and Mylne for the making of old Blackfriars Bridge. His design for the bridge, of eleven arches, appeared in the *London Magazine* for April, 1756. On taking down the old Gothic church, the date "1483" was found inscribed on a stone beneath the western gallery. A woodcut of it, after Toms's view of 1738, will be found in Hone's "Every-Day Book," vol. ii., cols. 505-6. The churchyard, of about one acre and a half, was laid out in 1884, at cost of the Vestry and the late Metropolitan Board of Works. The latter body set about the widening of Upper-street rather more than two years ago. Those alterations have almost quite destroyed the old-fashioned aspect of the main thoroughfare. Augustus Welby Pugin's drawings of old Islington were engraved on thirty-one copper-plates in 1810. Amongst the best illustrated books upon its history and topography, are J. Nelson's, 4to (1810), and T. E. Toulin's "Perambulation," 8vo (1858). We read, also, that the Vestry, having decided to adopt the Public Baths and Washhouses Acts, will borrow 50,000*l.* wherewith to provide three separate establishments for a population which already exceeds 300,000 persons.

WE regret that we received last week a copy of the *Coventry Times* of August 21, containing a letter from Mr. Webster, the clerk of works who has been employed at the work on St. Michael's tower, too late to comment on the said letter as we would have wished. It affords a striking example of the curious union of scientific ignorance with inordinate vanity, or what is sometimes called "bumptiousness," which frequently distinguishes those who boast of being "practical men." In a letter overflowing with self-complacency, Mr. Webster undertakes to show how, in spite of the opinions of the architects, St. Michael's tower can be made strong enough to swing the peal of bells again; and this is how it is to be done:—

"It is a well-known fact that iron built into walls will never rust or corrode, because the atmosphere cannot get at it. On this principle, iron hoop bond is always built into thin brick walls—it adds great strength to them, and certainly never rusts. Where iron is built and bedded in with pure Portland cement the strength obtained is immense, because Portland cement has an affinity for iron, as it has for stone. It is, practically speaking, as hard as iron, and goes right into the stone. (If iron is objected to, use copper.) This fact—which cannot be questioned—being admitted, that a plate of iron used in this way *must* strengthen the wall to such an extent that it is impossible to estimate or to calculate it, the only problem to be solved is one of simple multiplication; put as many of these bands into the walls as will make the steeple strong enough to allow the bells to be *rung up in full peal in the octagon.*"

It seems too absurd to notice such a statement seriously, but as some people in Coventry seem to be making a kind of oracle of Mr. Webster, they had better be told plainly that the statement above quoted is only remarkable for the astonishing ignorance of his business which it displays as coming from a clerk of works; that it is one of the commonplaces of building experience that iron in any quantity is one of the most destructive things that can be put into stone or brick walls; and that as to the analogy of hoop-iron bond, Mr. Webster is wrong in three different senses. 1st, hoop-iron bond being so thin in substance cannot be compared in its effects with thicker masses of the same metal; secondly, it is not looked upon now, by the best constructors, as anything more than a temporary assistance in tying together new walls on a risky foundation, and is somewhat doubtfully regarded even in that capacity; thirdly, that even hoop-iron bond has been known to rust sufficiently to cause the overthrow of a wall. Col. Seddon in his "Builder's Work" (the best practical book on building construction of late years) mentions a case where hoop-iron bond rusted up to three-quarters of an inch in thickness,

and caused the fall of a prison wall under a wind pressure which otherwise would have had no effect on it. Perhaps after this the wiseacres who have been "running" Mr. Webster in the local paper referred to will think it as well to receive his effusions with a little more caution.

THE BIRMINGHAM ELECTRICAL AND INDUSTRIAL EXHIBITION.

It was originally intended that the Exhibition in Bingley Hall, Birmingham, should be entirely devoted to the applications of electricity, but it was ultimately decided that it should also comprise industrial exhibits. The display cannot compare in extent with the vast shows of electric and power plant to which the public have become accustomed of late years, and on this account it was the more disappointing that a great many of the exhibits were at the time of our visit far from complete, while vacant spaces alone served to mark what the official catalogue led one to suppose would eventually be filled with objects of great interest.

Messrs. Fowler, Lancaster & Co., of Birmingham, are the engineers to the committee. The lighting undertaken by them has been carried out by means of Thomson-Houston plant; forty arc lamps of 2,000 candle-power are used—twenty-four in the Hall itself, six in the Winter Garden, and ten outside the building.

To the left of the entrance is an artificial coal mine, which, when finished, will give those who do not care about going down a real pit an excellent idea of what a working mine is like. The scheme has been carried out by Mr. Foggs, engineer to the Earl of Shrewsbury, whose aim has been to make it as realistic as possible. The lift is not yet in working order, but it is constructed so that when visitors have been lowered a little distance the walls of the shaft move rapidly upwards, while an artificial draught is produced by means of a Blackman's fan, supplied by Messrs. Wright & Co., of Birmingham. Finally, the cage reaches the cellars of the hall, where everything is arranged as in an actual mine. At present the illusion is spoilt by the temporary entrance being down a few steps through a side door. Close by the head of the pit-shaft the National Telephone Company have a call office, which is placed at the disposal of visitors to the Exhibition.

The Machinery-hall is in the opposite corner of the building, and may next be visited. Steam is supplied from two Galloway boilers capable of working up to 300 h.-p., each, at a pressure of 100 lbs. to the square inch. Messrs. Greenwood & Batley, of Leeds, exhibit an 80 h.-p. Armington & Sims engine, which drives the Thomson-Houston dynamo for the Committee's lighting. Messrs. Ruston, Proctor, & Co., of Lincoln, have an 80 h.-p. compound engine; Messrs. Robey & Co., of Lincoln, a 30 h.-p. compound, and two high-speed electric light engines, only one of which is compound. These latter run by no means silently, and will not compare favourably with the high-speed engines of certain other makers, the beautifully-balanced parts of which ensure silent working with a minimum of wear and tear. There is also an Otto gas-engine, in which the old slide-valve is dispensed with and an ignition-tube used.

Just outside the Machinery-hall, the Anglo-American Brush Company have erected a Raworth vertical compound engine, which drives their exhibit in a somewhat novel way. The engine drives a 35 Kilowatt Mordey alternator, giving 2,000 volts; part of the current goes direct to a transformer circuit of 100 volts for lighting a portion of the Hall with eight 2,000 candle-power Brush alternate-current arc lamps, in series with each of which is put an impedance coil. The rest of the current goes to a 24 Kilowatt Mordey alternator, which is thus made to act as a motor, and drives an E2 Victoria Machine for supplying 400 incandescent lamps. Such an arrangement would not, of course, be used in practice, but in view of recent controversy, this particular exhibit is of very great interest.

Mr. A. A. Goldston, of Middlesbrough, has always been a strong advocate of the Brush system, and the lighting he has undertaken is carried out, entirely in series, from a Brush dynamo-machine, with the addition of certain devices of his own. To one of the high-speed Robey engines, driving Mr. Goldston's dynamo, is attached an electrical governor for constant current, to which has been added a heavy armature, which falls and cuts off steam should the current stop, thus preventing all danger from racing. An ordinary Brush regulator, connected as a shunt across the field magnet coils of the dynamo, is also placed in position, and can be used instead of the electrical governor. The fifteen Brush arc lamps so controlled run with remarkable steadiness, in series with fifty 32-candle-power low resistance incandescent lamps; these latter are fitted with an exceedingly simple form of cut-out, which is placed entirely inside the bulb. A special form of main switch, to be used in each house in town lighting, completes the special features of Mr. Goldston's system.

Messrs. Scott & Co., of Newcastle-on-Tyne, exhibit a new form of dynamo-machine for the first time; it is four-poled, with a flattened ring armature, the coils coupled up so as to need but two brushes. The field magnets, arranged in a square and set up on one corner, present rather an odd appearance. At present the machine is running six 3,000 candle-power Tyne arc lamps and a motor abreast. The same firm also exhibits launch-engines, pumps, and various other objects of general engineering interest.

Messrs. Laurence, Paris, & Scott, of Norwich, are showing some of their dynamos and motors, these latter being placed in various parts of the Hall to give power to the machinery of other exhibitors. They also show a small dynamo and special form of steam-engine coupled together on one bed-plate, besides meters, switches, cut-outs, and various other contrivances.

Messrs. Laing, Wharton, & Down, of London, exhibit Thomson-Houston electric lighting plant, and give a prominent position to an electric welding machine. The one shown, or rather shortly to be shown, in action, is supplied with the necessarily large current by means of a transformer at the back of the apparatus. When in working order this stand will form one of the chief attractions of the Exhibition.

Messrs. Elwell-Parker & Co., of Wolverhampton, are showing their various dynamos, motors, and accessories, their machines being also exhibited by other firms in various parts of the Hall, notably at Messrs. Crossley's stand, where a 4-h.p. Otto gas-engine drives an Elwell-Parker machine for the purpose of charging a battery of their B31 type accumulators.

Messrs. J. E. Hartley & Co., of Birmingham, exhibit the various chemicals and apparatus used for electro-plating, as do also Messrs. W. Canning & Co. and Messrs. Cruikshank, of Birmingham. Considering that Birmingham produced the first plating machine, it is curious what peculiarly bad dynamo-machines electroplaters are contented to use; not only are they badly designed, but some of them are so flimsily constructed that the wonder is how the armatures hold together for any length of time.

The Edison & Swan Company naturally have the finest display of incandescent lamps in the Exhibition. Artistically arranged in a glass-case, there are lamps varying in size from ¼ to 500 candle power. A new focus lamp, for use in a lantern, has the filament coiled into a helix, which is doubtless a great improvement in many cases. The Electrical-Power Storage Company fill their stand with various forms of accumulators and automatic apparatus to be used with them.

The Planet Electrical Engineering Company, of Westminster, have eight alpha arc lamps lighting part of the Hall; their chief peculiarity is that the regulating mechanism is actuated by a little motor, the field magnets of which are in series with the arc and the armature in shunt with the magnet coils. They apparently require some little adjustment, after which they will doubtless run satisfactorily.

Messrs. Fowler, Lancaster, & Co., have on view some very handsome designs for electroliers, and general fittings, which are at present being arranged. Messrs. Thonet Brothers, of London, exhibit some electric chandeliers in bent wood. They are decidedly novel, and though somewhat heavy in appearance, will admirably suit certain styles of decoration. Messrs. Appleton, Burby, & Williamson, of London, show a very varied collection of switches and cut-outs made of inflammable materials, and constructed so as to give the the least possible trouble from sparking. The contacts are very massive, and the switches for large currents snap off as soon as the handle has moved through a certain angle. They also show an automatic arrangement for use with secondary batteries, and a patented form of battery cell made of some pliable material. The General Electric Company have a very interesting case of apparatus for almost every conceivable purpose in which electricity plays a part. Some of their pushes and switches are very novel and quaint in design. Messrs. Woodhouse & Rawson display an interesting collection of old telegraph instruments and some measuring instruments of neat construction, but their stand is far from complete. The Acme Electric Works, of London, show a great many Cockburn switches and cut-outs, and some multiple-break switches.

Messrs. Walter T. Glover & Co., of Manchester, Messrs. W. T. Henley, the Callendar Bitumen Telegraph and Waterproof Company, of London, and Messrs. Fowler & Co., of Leeds, have stands showing the various wires and cables respectively manufactured by them for electrical purposes.

Messrs. Buller, Jobson, & Co., of London, Birmingham, Dudley, and Hanley, have erected a telegraph-wire centre on the roofs of two houses, carrying every conceivable form of insulator with wires attached. Budding electrical engineers would do well to study this structure very closely. Mr. Julius Sax, of London, has a very interesting exhibit of electric bells, burglar alarms, automatic fire-call bells, electric billiard markers, and a great number of other useful contrivances.

A Snelgrove electric weighing machine has been sent by Messrs. W. T. Avery, of Birmingham, in which the counterpose is shifted to the right position on the lever by a little electro-motor. The Admiralty show a Whitehead Torpedo complete and in section, together with other apparatus for carrying on marine warfare.

Well-arranged cases of apparatus are exhibited by Messrs. Nalder Bros. & Co., of Westminster, and Messrs. John Davis & Son, of Derby. Messrs. Muller, of Bradford, send a case of the well-known Schuckert measuring instruments.

The Schanschieff Electric Battery Syndicate have on view some of their primary batteries for incandescent lighting on a small scale; as have also Mr. T. Coad, of London.

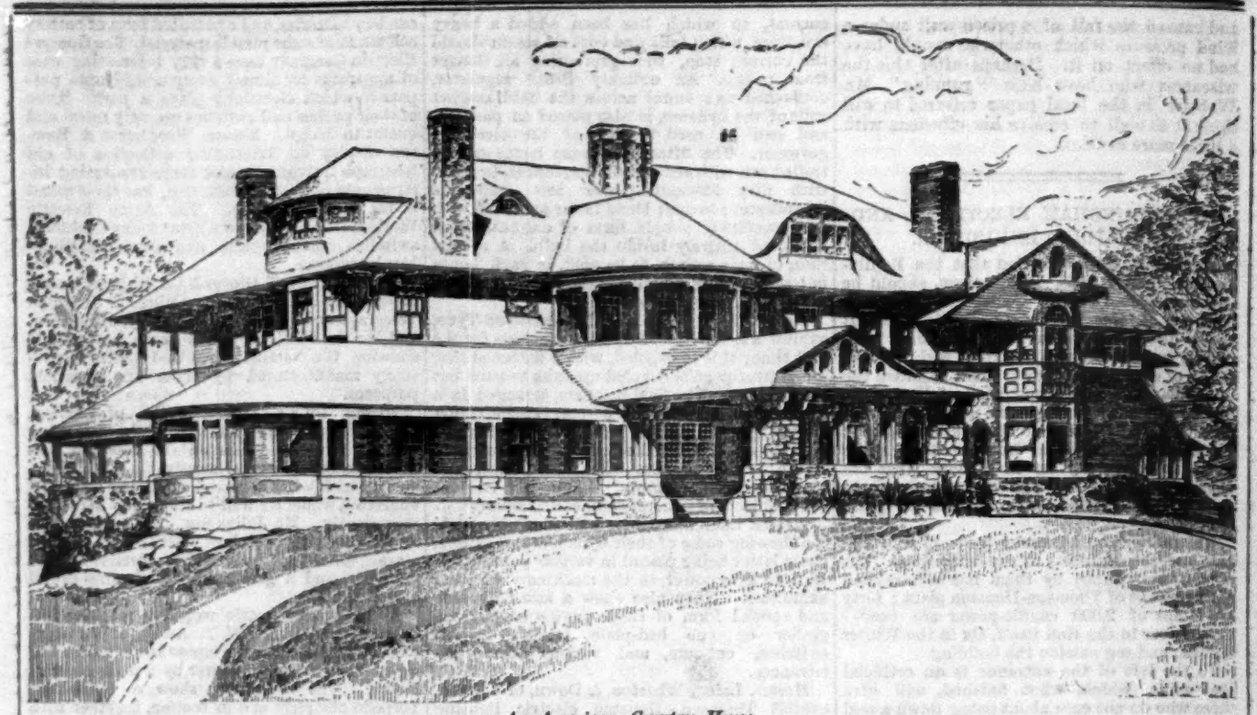
Readers of Sir David Salomons' little book have an opportunity of seeing the somewhat complicated arrangement of apparatus used by him in his installation at Broomhill for automatic regulation; although the collection goes into a small glass case, time and patience will be required to follow the connections and functions of the various parts.

Some of the gas-engines which are doing work prove that the Otto is now by no means alone in the field. Messrs. J. B. Barker & Co., of Birmingham, show a Forward gas-engine, with rotary ignition, which appears to work with almost perfect regularity; and a Griffin gas-engine, which is double acting, exhibited by Messrs. Dick, Kerr, & Co., of Birmingham, shows the great advances that have recently been made in this kind of engine.

A feature which is especially noticeable throughout the exhibition is the free use that has been made of electric motors for the machinery in motion; apart from the interest attached to such use from an electrical point of view, the gain in appearance and safety to attendants and visitors by dispensing with unsightly counter-shafting and dangerous belts is immense; it is to be hoped that in all future exhibitions of machinery, whether electric or otherwise, this means of transmitting power will be universally adopted.

Amongst the exhibits that will eventually add to the interest of the exhibition must be specially mentioned the aërial telpher line, which will carry visitors round the gallery of the Winter Garden, now in course of construction by the United Electrical Engineering Company, of Westminster; this example of overhead electric traction will be novel to most of those who visit Bingley Hall. The Julien Electric Tramcar Company have space reserved for one of their cars, and Messrs. Immisch & Co., of London, will shortly have one of their motors, designed for tramcar traction, on view at their stand. Messrs. Crompton & Co., of Chelmsford, promise an electric crane, all the movements of which can be controlled by three levers. From Messrs. Shippey Bros., of London and Levallois-Perret, great things may be expected, as the list of the plant they propose exhibiting extends over more than two pages of the catalogue, though as yet the few articles which are in position call for no special notice.

At the end of the Hall opposite the entrance



An American Country House.

an organ-gallery has been erected, and from it Messrs. Gilmer's Military Band plays selections of music at intervals during the day; the organ has been supplied by Mr. Halmshaw. In front of the gallery artificial rock work has been tastefully arranged, and the sound of the small cascades and fountains splashing into a little lake on the level of the floor is very refreshing to listen to.

The gymnasium attached to the hall has been converted by Messrs. Vertegans & Co. into a Winter Garden, at one end of which there is a small artificial waterfall.

Everything possible has been done to make the Birmingham Exhibition as attractive and complete as the space at command will allow.

AN AMERICAN COUNTRY HOUSE.

This is an example of the modern "picturesque" American country residence. The ground-story walls are of brick, and the upper walls covered with shingles. The architect was Mr. R. H. Robertson.

THE CAMBRIAN ARCHÆOLOGICAL ASSOCIATION IN BRITTANY.

For the first time in the history of the Cambrian Archæological Association has the annual meeting been held outside the limits of Great Britain. This year, instead of visiting some locality in Wales, it was determined to go to Brittany, and to make Auray and Morlaix the chief centres for the excursions. It had long been felt by the committee that it would be very desirable to give the members of the Association an opportunity of comparing the antiquities of the Principality with those of Brittany, not only because the race of dolmen-builders at one period inhabited both countries, but also on account of the intimate connexion which existed between the early Bréton and Welsh saints. The science of comparative archæology is almost lost sight of in England, and it seems to be quite forgotten that many of the problems which, looked at from our narrow insular standpoint, appear to be insoluble, are not really so if we would only take the trouble to go further afield and examine the ancient monuments and objects preserved in museums abroad.

Animated with a desire to enlarge the scope of Welsh archæology, a party of twenty-two members of the Association started from Southampton at six o'clock in the evening of August 12 in the South-Western Railway Company's steamer for St. Malo direct. After a smooth passage, St. Malo was reached early on the following morning. Before proceeding further on the journey some hours were spent in wandering through the narrow streets of this rather dirty town and walking round the ramparts of the walls, from which beautiful views of the sea are obtained on all sides. St. Maclou, or Malo, was a Welsh saint who founded the see of Aleth, a Gallo-Roman city occupying the site of what is now St. Servan, in the middle of the sixth century. Bishop Jean de la Grille removed the see from Aleth to the Ile d'Aaron, afterwards called St. Malo, in A.D. 1144. The nave of the present cathedral dates from this period, its vaulting being supported by columns with Romanesque capitals ornamented with grotesque human heads, syrens, dragons, beasts, &c., carved in granite. The town of St. Malo is completely surrounded by its old walls, above the ramparts of which are seen the tall roofs of the houses within and their massive chimney-stacks piled up high against the sky, as one enters the harbour from the sea.

At midday the party continued their journey by rail to Vannes. The scenery between St. Malo and Rennes is flat and uninteresting, the only object which has any attraction for the antiquarian being the Cathedral of Dol, founded in the sixth century by St. Samson, who if not a Welsh saint, was, at all events, educated at St. Iltyd's College at Llantwit Major, in Glamorganshire. After leaving Rennes, the railway follows the valley of the River Villaine, that gives its name to the Department of Ile et Villaine, and the prospect, as seen from the train, becomes more varied. High cliffs of purple slate rise abruptly from the river, and picturesque little water-mills with undershot wheels are placed on a stone pier in mid-stream wherever a weir occurs. The landscape is in places very pleasing, and the white patches of buckwheat, surrounded by fences formed of slabs of slate set on edge, were new to those accustomed to the bright yellow corn-fields of England with their trim hedges. Passing Redon, a glance was obtained of the massive Romanesque tower of the church. Vannes was reached a little after 7 p.m.

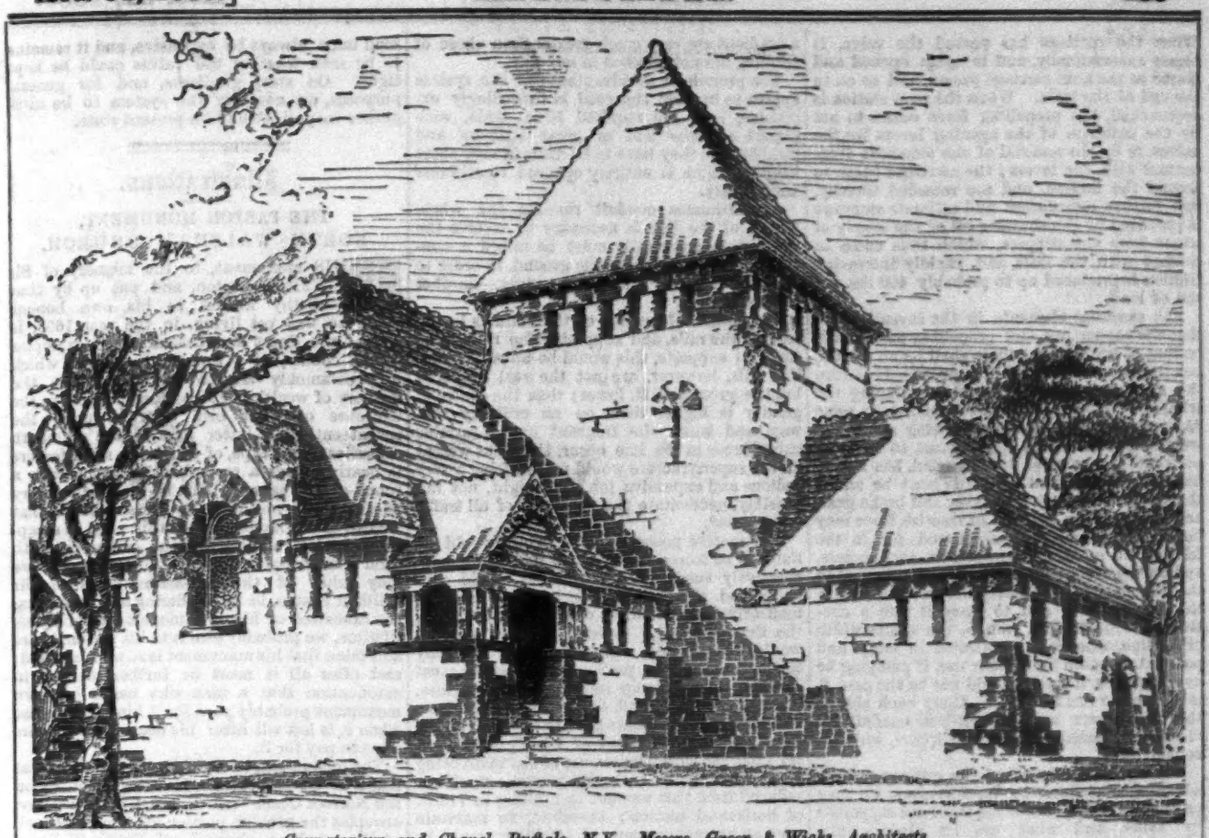
On Wednesday, the 14th, the members were met by their President, M. le Dr. de Closmadeuc, at 9.30 a.m. and conducted by him to the Museum of the Société Polymathique du Morbihan, of which he has been the President for several successive years. This museum contains all the antiquities discovered in the dolmens in the district of the Morbihan, most of which have been systematically explored by the Société Polymathique. It is particularly rich in polished stone implements, beautiful in form and made out of the hardest materials obtainable, such as fibrolite, jadeite, and diorite. More than one hundred of these axes came from out of a single-chambered cairn, called Mané-er-Hroek, at Locmariaker, together with a unique stone ring of jadeite. The great tumulus of Tumiac, in the Commune of Arzon, has contributed almost as many axes, and a necklace composed of 107 beads and ten pendants, all made of a bright blue stone resembling turquoise. One very remarkable feature with regard to the axes is that a large proportion of them were found to have been broken purposely before being buried, whether to prevent their being used by any one except the owner, or for some reason connected with the religious belief of the neolithic inhabitants of the Morbihan, it is now impossible to determine.

The Vannes Museum is in an old house, No. 8, Place des Lices, quite unworthy of so valuable a collection. M. L'Abbé Mené, the curator, and author of the very excellent catalogue, was present on the occasion of the visit of the Cambrian Archæological Association, and the members profited much by his lucid explanations and kindness in allowing every facility for inspecting the objects under his charge. The collection is arranged in three rooms on a chronological basis—(1) containing Celtic antiquities, (2) Gallo-Roman, and (3) Mediæval and Renaissance.

After leaving this museum, an inspection was made of the cathedral. It has been so much remodelled at a late period as to be almost devoid of architectural interest. In the sacristy, however, is preserved a curious twelfth-century reliquary, which was well worth seeing. It consists of a small rectangular box made of oak and covered with paintings on vellum of knights on horseback hunting, and domestic subjects. Some of the shields are of the kite shape seen on the Bayeux tapestry, and the costumes are altogether well worth careful study.

In the afternoon a visit was paid to the mineralogical museum of the Comte de Limur, a veritable enthusiast in all matters relating to his favourite pursuit. An hour or two was most pleasantly spent in listening to the Comte discoursing on the various stones of which the implements found in the dolmens were made, and the localities whence they were obtained. Some doubt seems to exist as to whether the blue stone called "callais" in French, of which the necklaces from the tumulus of Mané-er-Hroek are made, was imported from abroad or not. M. le Comte de Limur has several specimens of a similar stone obtained from Creuse, in France, and he believes the necklaces to be of native origin.

A walk through the streets of Vannes and round the town walls concluded the labours of the day. Many of the old houses are worthy of the attention both of the architect and the lover of the picturesque, especially those near the cathedral, in the Place Henri IV. No. 4, Rue du Pont, is a good example, with an inscription in French giving the date 1665. It is a characteristic feature of the houses in this part of Brittany to have the two side-walls of



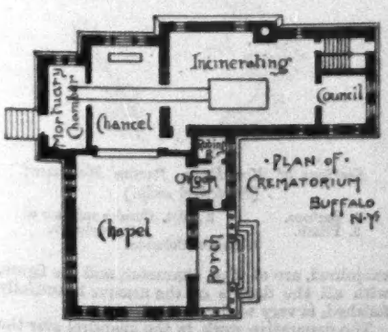
Crematorium and Chapel, Buffalo, N.Y.—Messrs. Green & Wicks, Architects.

granite showing on the front, and ornamented with mouldings, stringcourses, or carving. The portion of the front between the two granite side-walls is chiefly of timber. Each story projects further into the street than the one below, as in the domestic architecture of the same period in England, but the horizontal beams are of large dimensions, and much more elaborately moulded. The ends of the joists supporting the floors appear below the horizontal beams at intervals, like corbels, and the mouldings are stopped between each. On the fronts of some of the houses there is a good deal of carving of considerable merit, and the student might well spend a week at Vannes sketching and measuring the details. The best views of the old walls of the city are obtained on the east side, where the Tour du Conétable is to be seen. Its Mediæval character and general outline reminds one of Nuremberg, and those delightful buildings crowned with sharply-pointed roofs that so often form the background to Albert Durer's etchings.

We hope to continue our account of the meeting next week.

CREMATORIUM AND CHAPEL, BUFFALO, N.Y.

THIS example of crematorium architecture was built from the design of Messrs. Green & Wicks, architects, of Buffalo. The materials



are a warm-coloured stone for the main portion of the walls, with darker brown stone dressings, and a red tile roof.

THE SLIDING RAILWAY.

ONE of the exhibits at the Paris Exhibition which has aroused a considerable amount of attention and interest is what is known as the "Chemin de fer glissant," by the use of which it is maintained that speeds of from 87 to 124 miles per hour can be secured without difficulty or danger, that curves of 44 yards radius can be employed with safety, and that gradients of 1 in 2½ can be surmounted with ease, all these advantages being obtained at a less cost for working than where the ordinary motive power and train are employed.

It is further claimed that a train running at a speed of 100 miles per hour can be stopped in 30 yards without shock or jar, that any length of train can be used, the power employed being simply proportional to the number of vehicles of which the train is composed, that the speed is constant, and that for this reason collisions are almost impossible, and trains can be run to follow one another very closely.

This system of railway is the invention of a French engineer, M. Girard, who was killed in the Franco-German War. The plans were bought by another French engineer, M. Barre, by whom the invention has been brought to the condition under which it has for some weeks past been exhibited on the Esplanade des Invalides, at the Paris Exhibition.

The construction of the railway is as follows:—Continuous wrought-iron braced supports, about 6 ft. high, carry cross-girders of H-form, spaced about 4 ft. between centres. On these are placed longitudinal timbers, which carry the rails, made of cast-iron, of bridge-form, about 10 in. wide on the face, planed throughout, and cast in lengths of from about 10 ft. to 4 ft., the shorter lengths being used where there are changes of gradient. The carriages are supported on cast-iron slippers instead of wheels, each slipper being about 18 in. by 10 in. in plan. The under sides of the slippers, which come in contact with the rails, show a number of grooves cut in the surface parallel to the sides and ends, each groove being about ¼ in. wide and ¼ in. from the next one, there being some three grooves on each side of the slipper. The middle portion of the face, about 12 in. by 4 in., is cut out, and offers no surface for contact. Each groove is stopped off into short lengths, and this is said to be an essential feature, as if the grooves were not stopped off the water would run to one end, and the frictional resistance would have to be multiplied by three.

Between the longitudinal wrought-iron supports for the rails is placed a cast-iron water-pipe, about 8 in. in diameter, from which rise at short intervals (the length of four carriages) branch vertical pipes, provided with horizontal nozzles pointing in the direction in which the train has to run, and slightly across it.

The carriages in use at present are simply open trucks, and each of those which carry passengers is provided with four slippers, while that one which contains the water-supply (the use of which will be explained later), and in which are the valves and handles for starting and for regulating purposes, has six, as it is heavier than the others. Supposing the weight of a carriage and its load to be four tons, then the pressure on a slipper will be one ton, and per 1 in. of surface of supports, 13½ lb.

To each carriage is fixed, at the height of the nozzle of the water-pipe, a straight turbine, so to speak, extending the whole length of the carriage, and so arranged that the water impinging on it will force the carriage forward. At the side of the carriage, and at about the same level, is placed a rod, also extending the whole length of the carriage, but shaped to a parabolic form at the ends in plan. This rod is provided with a small horizontal movement, which can be regulated from the train, and its use is to open the valve which admits water to the turbine, and which is closed again automatically immediately the carriage has passed.

The experimental line is about 150 yards in length, and the trains start from each end from the top of a gradient; thus, the starting-power used is that of gravity.

When it is desired to start the train, water, under pressure, contained in tanks in one of the carriages, is admitted to the slippers, when the water, in its endeavour to find an exit,—an endeavour which is retarded but not stopped by the annular grooves,—lifts the slippers from the rails, and a film of water is introduced between the surfaces; this reduces the friction, it is said, to about 3 lbs. per ton of weight carried, and the carriages immediately start down the incline. When the parabolic side-rod on the carriage meets the first valve, which is situated at the foot of the incline, it opens it gradually, a stream of water, under a pressure of some 150 lbs. per square inch, is delivered into the turbine, and the carriage is driven forward.

When the carriage has passed the valve, it closes automatically, and is again opened and closed as the next carriage passes, and so on to the end of the train. When the next station is approached, the propelling force ceases to act by the omission of the opening levers for the valves, or by the removal of the side-rods from contact with the levers; the carriages begin to ascend the incline, and are retarded thereby, and further retardation and ultimate stoppage is produced by the shutting off of the supply of water from the slippers, which thus come in contact with the rails, and, rapidly increasing friction is produced up to probably 400 lbs. per ton of load.

The essential elements in the invention are that the supporting and propelling power shall be that of water; that there shall be no wheels, but that a water film shall be produced between the slippers and the rails, thus reducing the friction of motion, so it is contended, by some 95 per cent. The locomotive being absent, its weight, amounting in many cases to some 30 per cent. of the total load carried, has not to be taken into account. To this must be added the weight of the wheels, axles, and brake-gear, and thus a large amount of tractive force may be saved beyond that accounted for in the friction of motion. Opposite to each nozzle, and on the other side of the turbine attached to the carriages, is an opening designed to receive the waste water and to carry it into a continuous wrought-iron trough, the whole width of the line, whence it is collected in sumps and pumped up again for further use, if pumping be necessary, or, if such should not be the case, it is allowed to run to waste. Along each side of the track there are wrought-iron conduits to receive the leakage from the slippers, which is considerable.

Having briefly described the railway and the advantages claimed by its inventors, we may proceed to consider how far these are supported by facts, and what are its obvious disadvantages.

The line is distinctly in an experimental stage, and its real capabilities cannot possibly be judged until it has been tried upon a larger scale; until the waste of water, which is at present a serious drawback, has been minimised; and until the claims put forward have been made the object of careful experiments and analysis; nor is it possible to enter into the economic question of comparative cost in the short space of an article, even if the data were clearly and definitely fixed, which is far from being the case; but there are many points of interest which may easily be considered and fairly commented on.

There should be no doubt of the advantages offered by the system of water-borne sliding friction, in contradistinction to rolling friction, if it were certain that at high speed the former were only 5 per cent. of the latter; there should be much less tractive force required, there should be greater steadiness, less undulation and vibration, and the height of carriages and therefore of bridges and tunnels, might be materially reduced. But can this great difference between sliding and rolling friction be proved and maintained in practice? Our own impression is that wheeled carriages would start down the incline provided as easily and at the same pace as do the sliding carriages, and that, therefore, the frictional difference can be but trifling. By getting rid of the locomotive, &c., the paying load is increased, and the weight on rails diminished, and, therefore, a much lighter road should support the train, objects much to be desired and long aimed at by engineers, but without much success. But is the road lighter and less expensive than that in ordinary use? On the other hand, it is admittedly heavier, and more expensive. One advantage claimed is that the efficiency of a turbine depending upon regularity of speed, a constant efficiency is maintained, the propelling power being constant, and the proportion of load to propelling power also constant. But this is only true on the level, and becomes entirely fallacious the moment an incline is reached.

The claim that speeds of eighty-seven to 124 miles per hour can be secured, and that curves of forty-four yards radius can be passed with speed and safety, requires demonstration, and the assertion that gradients of 1 in 2½ can be surmounted is one of economy, the advantages offered by this system being that there is no locomotive or wire rope to carry, that the friction of motion is *presumably* less, and that, therefore, the load to be hauled is lighter; but the forces of gravity, which in such a gradient are very much greater than those of friction, are not affected in any way.

The prominent disadvantages of the system appear to be that the road is exceedingly expensive, rails are required 10 in. wide, with planed surfaces and of great stiffness and rigidity, and they have to be made in very short lengths, which is entirely opposed to stiffness and rigidity.

A continuous conduit running the whole length of the line is necessary to receive the waste water; the rails must be raised a considerable distance above the ground, in order to allow space for the water-pipes,—another expensive item.

The centre of gravity of the train is low as regards the rails, and supposing the rails to be the real supports, this would be advantageous. The rails, however, are not the real supports, but the ground 6 ft. lower; thus the centre of gravity is higher than on an ordinary railway, and when the frequent and invariable subsidences in the line occur, the great weight of the superstructure would make lifting a very tedious and expensive job, and might, not impossibly, necessitate the stoppage of all traffic for a period.

The motive power is water, which would be liable to be frozen in cold countries, and a comparatively small amount of frost would probably load the turbine with ice, and make it ineffective. In countries where water is absent, the line would be useless. Where pumping would be required, the question of economy becomes more than problematical, as we must consider the efficiency lost in boilers, engines, pumps, pipe-track, and, finally, on the turbine.

When steep gradients have to be surmounted, say, at the rate claimed of 1 in 2½ or 2,334 ft. per mile, the working pressure of the main being 150 lb. per square inch, the pressure would be reduced from that amount to nothing in 778 ft. of horizontal motion; therefore, to maintain even an average pressure of 150 lb., it would be necessary that there should be pumping stations at every 778 ft., and that the working pressure should be increased to 225 lb.; and even under these circumstances the final pressure would be only 75 lb., and the action of the turbine would become most inefficient. The other alternative is to have more frequent pumping stations, and such a proceeding would be ruinous.

Water must be carried in the train at a moderate pressure for the supply of the slippers, and as the leakage from these is considerable, a vast quantity of water, amounting probably to 120 tons for a 20-mile run, would have to be carried, whereby the saving of locomotive weight would be more than neutralised, or it must be picked up at frequent intervals, and forced to the required pressure by power carried in the train. On very steep gradients to pick up water would be next to impossible, and it would at all times require considerable power to do this.

In going up a gradient of 1 in 2½ the pressure on the slippers of the first carriage would be, say, 14 lb., but at the rear of a train only 300 ft. long, or about seven saloon carriages, the pressure would be 144 lb. per square inch, and the water would stream out and be rapidly lost.

The patentee proposes to lay out his line so that there should be a rising gradient to every station in both directions, in order to facilitate starting and stopping; but such an arrangement is impossible in practice, and it would be necessary that the power employed should start the train.

The difficulty of conducting marshalling and shunting arrangements on such a line, where starting is difficult and points and crossings suitable for the purpose could not be easily devised, would be enormous.

As regards the speed of trains being constant, this is true so long as the line is level and each vehicle is of the same weight per unit of length; but it is no longer true if gradients have to be surmounted, nor if the other conditions are unfulfilled.

We should prefer to have business elsewhere when this or any other train is brought to a state of rest from a speed of 100 miles per hour in a distance of 30 yards, and we think the bill for damages would prevent the experiment being repeated.

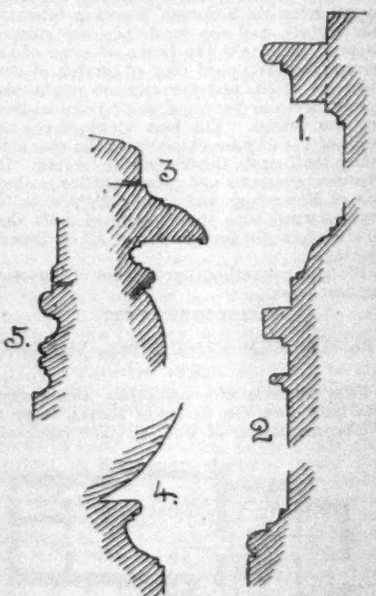
As at present designed, the line is not applicable to overhead railways, and though on level ground, and with unlimited water power obtained for nothing, or next to nothing, and when shunting operations were reduced to a minimum, it might be worked cheaply, the road must always be expensive, and it remains to be seen whether the valves could be kept tight. On steep gradients, and for general purposes, we consider the system to be altogether inapplicable in its present state.

Illustrations.

THE PASTON MONUMENT, NORTH WALSHAM CHURCH.

THIS monument, to the memory of Sir William Paston, and put up by that worthy knight to his own honour while he was yet living, in the year 1606, is one of the finest and best-executed examples in the country of a type of monument which was commonly adopted to perpetuate the memory of wealthy or important persons in the churches of their own district during the seventeenth and latter part of the sixteenth centuries. The type, of which the main feature is nearly always a recumbent effigy beneath a round-arched canopy, must be familiar to every one, but it is not in every parish church that we can find a monument of this class so sumptuous in design and scale, and carried out with such refinement of detail; and whatever we may think of the self-assertiveness of Sir William Paston, in thus ordering and overseeing the execution of his own monument during his lifetime, we probably owe it to his personal care and taste that his monument is so well executed; and after all it must be further pleaded in extenuation that a man who builds his own monument probably pays for it himself, whereas when it is left till after his death the survivors have to pay for it.

The monument, to which some reference was made in an article on "Notes of a Holiday on the Norfolk Coast" two years ago in the *Builder*, occupies the greater portion of the north wall of the shallow chancel of North Walsham Church, which was one of the churches visited by the Archæological Institute in their recent annual excursion, as mentioned in our last issue. The main portion of it is in white marble; the panels, pyramidal finials, and columns being in three different marbles; the centre finial is of a dark blueish mottled marble, the side ones of a lighter coloured and more striated marble; the columns are of a mottled or granulated marble of a warmer tone; the column marble and the dark one are alternated in the panels. The mouldings, of which a few sketch profiles are

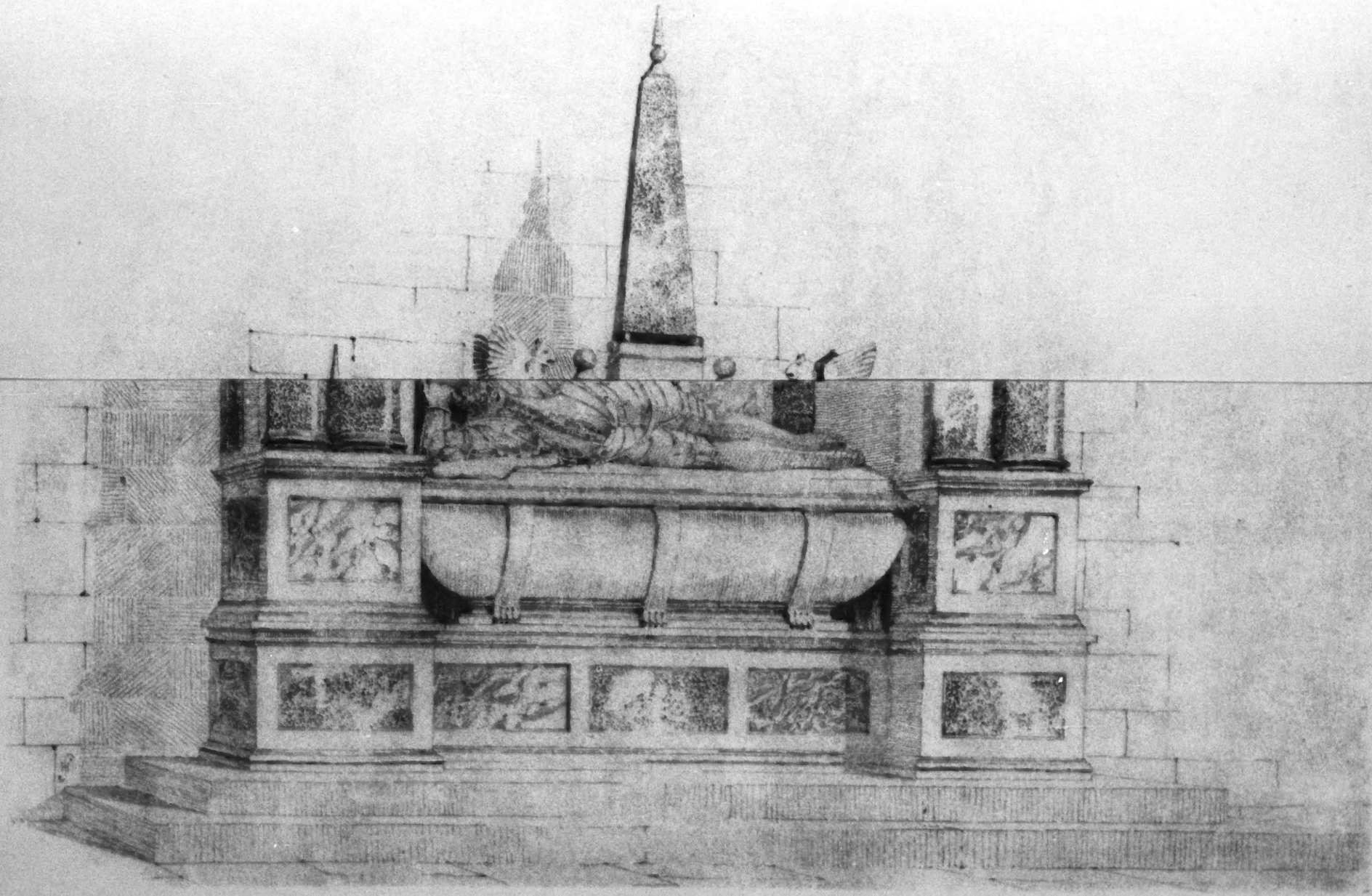


Sections of Mouldings, Paston Monument. (*Sketched only.*)

1. Surbase.
2. Plinth.
3 and 4. Cornice and base of Sarcophagus.
5. Base of Columns.

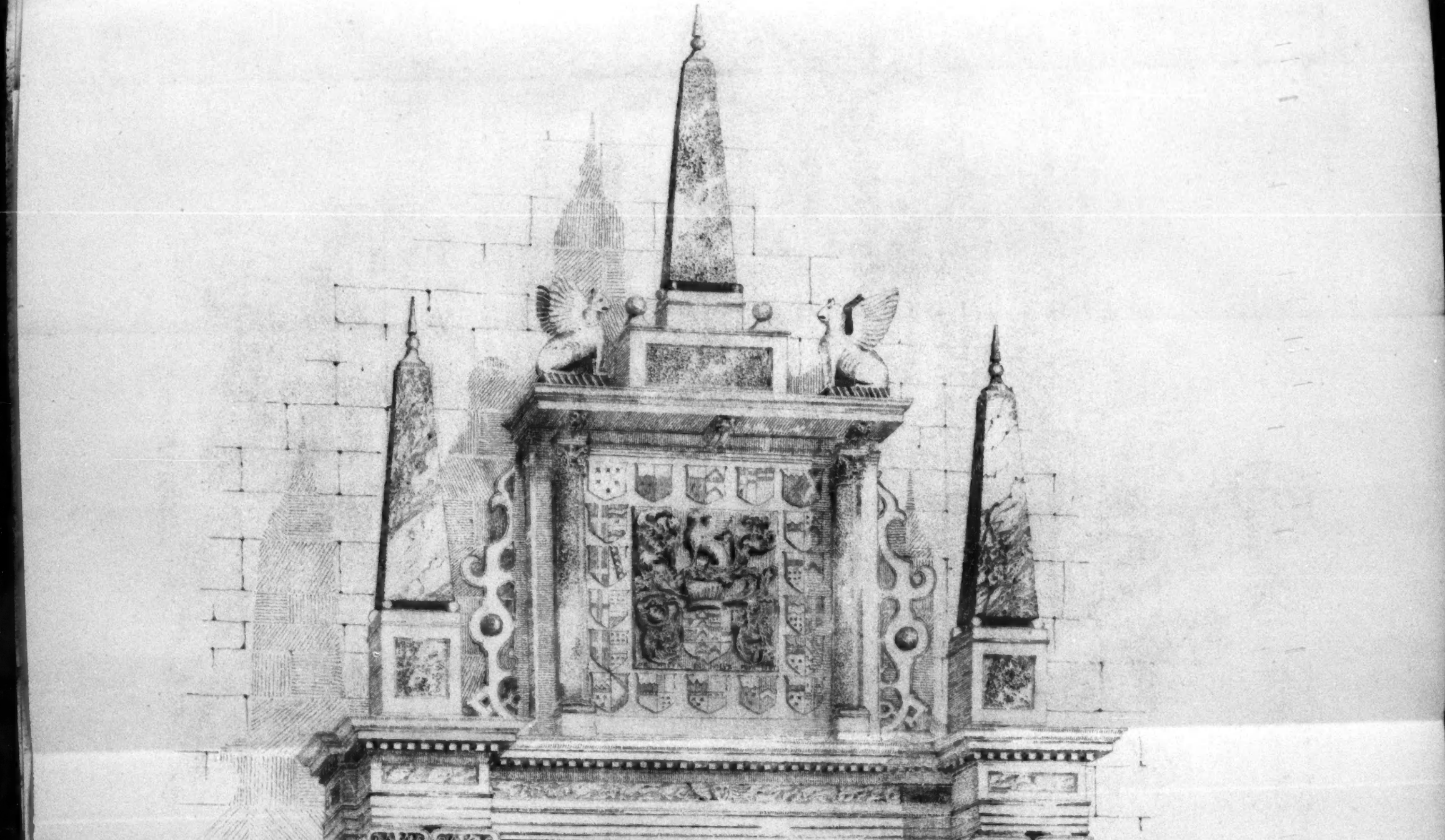
subjoined, are of fine character, and the figure, with all the details of the armour beautifully finished, is very well executed.

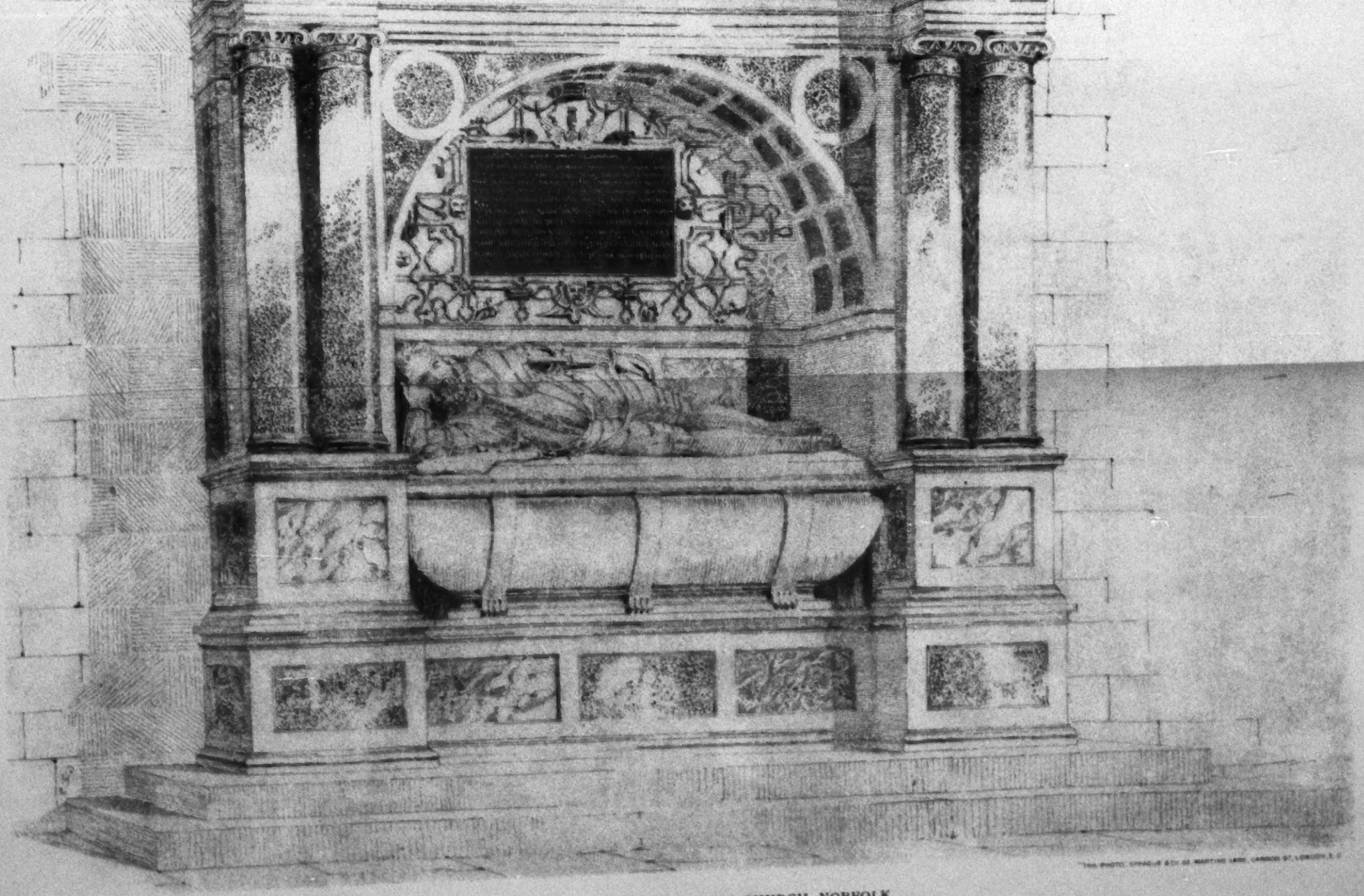
The decorative work in the spandrel over the figure, in the back of the recess, though it is not of the highest school of ornament, is of the very best of its school, and is most minutely



THE PASTON MONUMENT, NORTH WALSHAM CHURCH, NORFOLK.

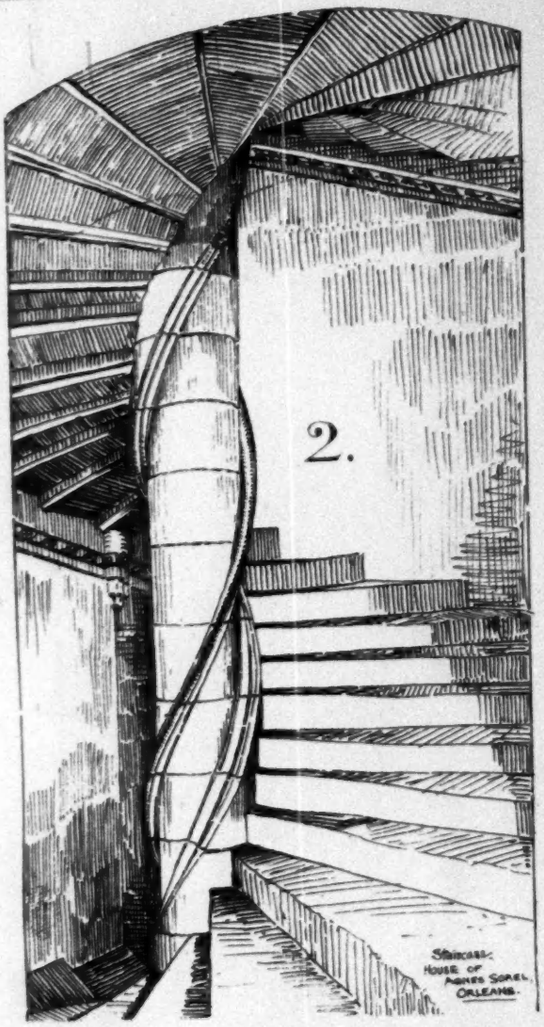
FROM A DRAWING BY MR. H. H. STATHAM.

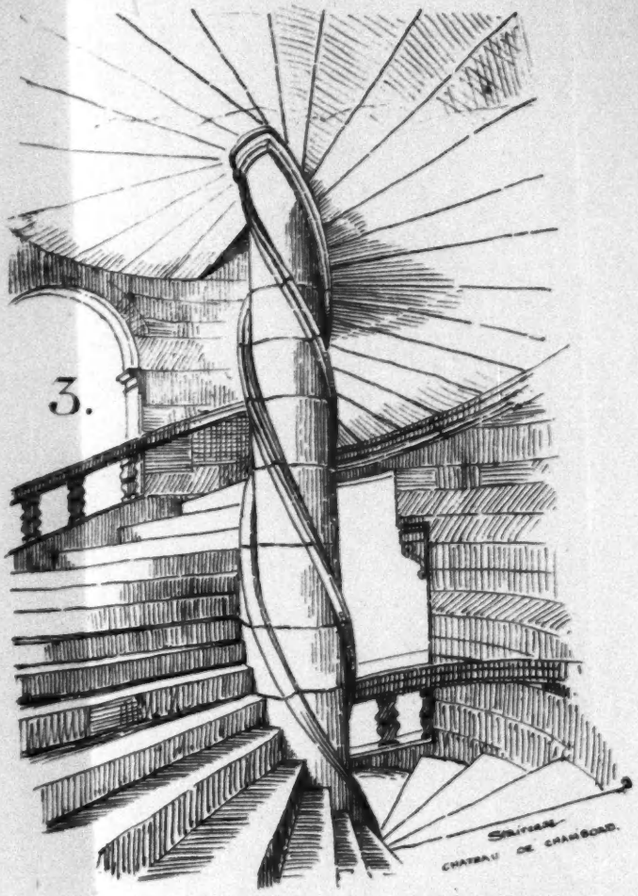


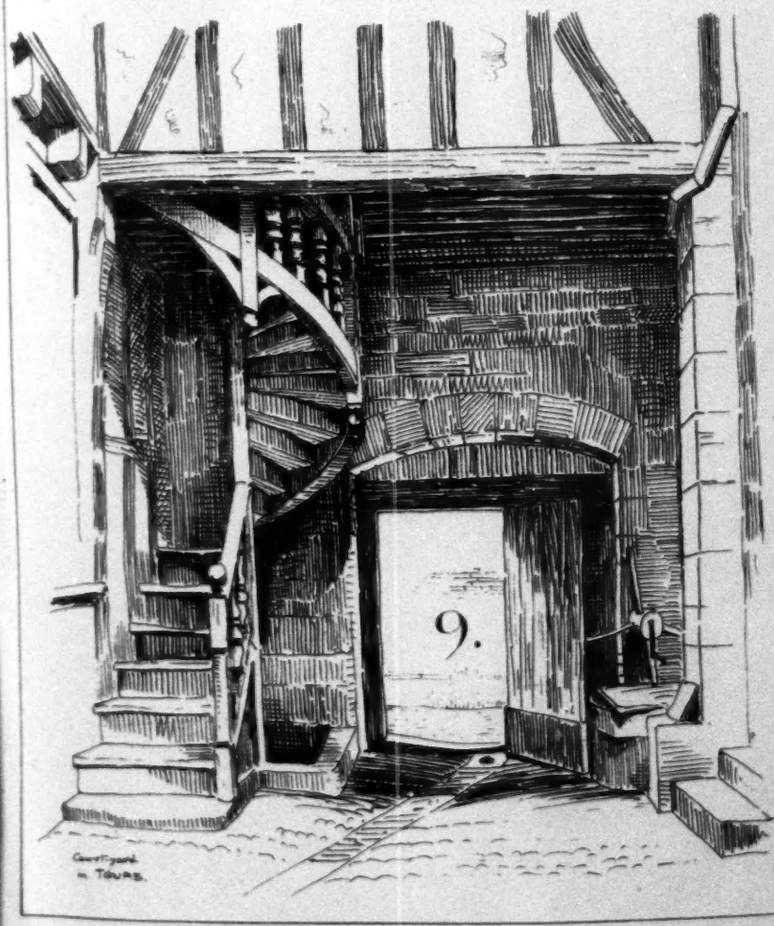


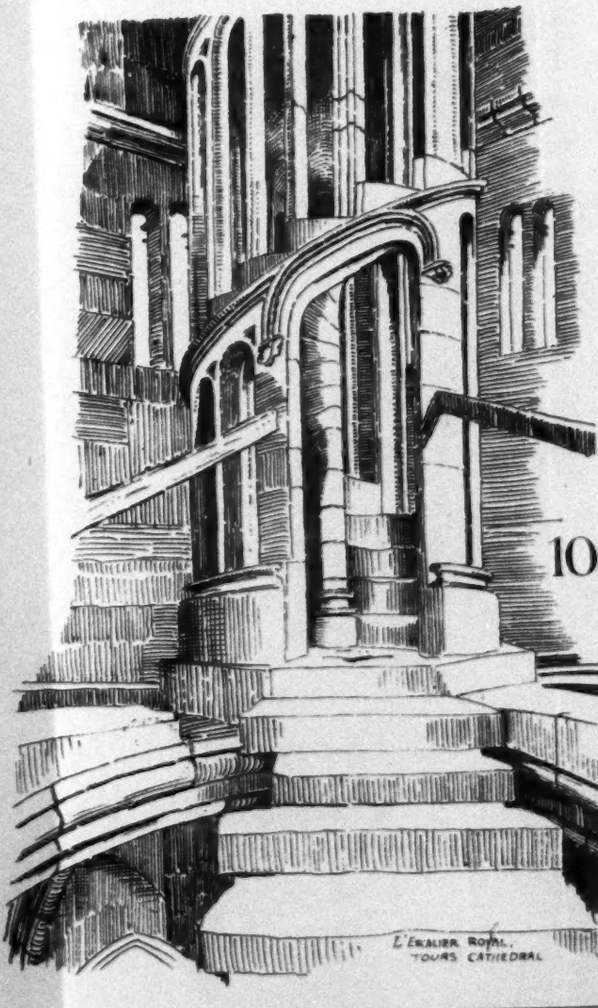
THE PASTON MONUMENT, NORTH WALSHAM CHURCH, NORFOLK.

From a drawing by Mr. H. H. Statham.









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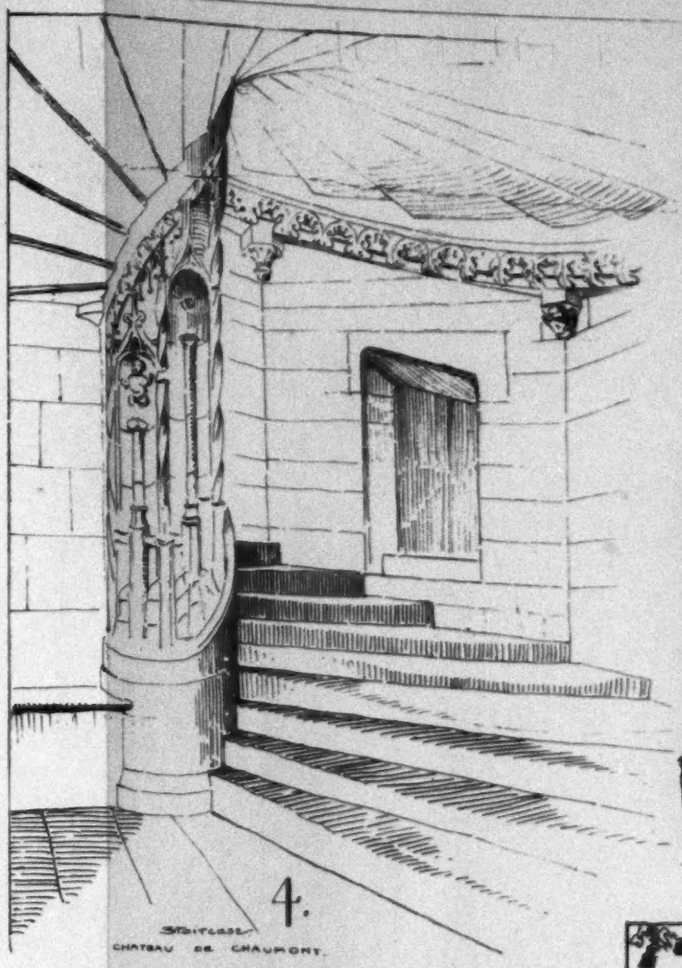
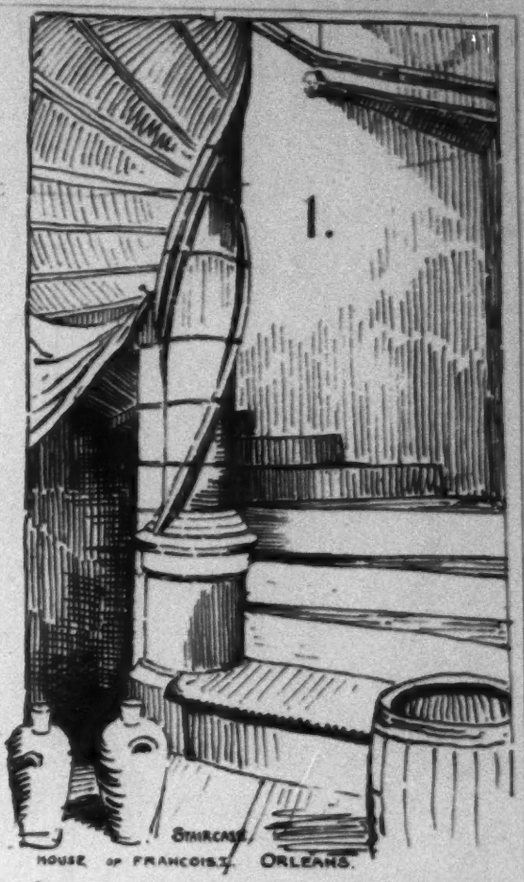


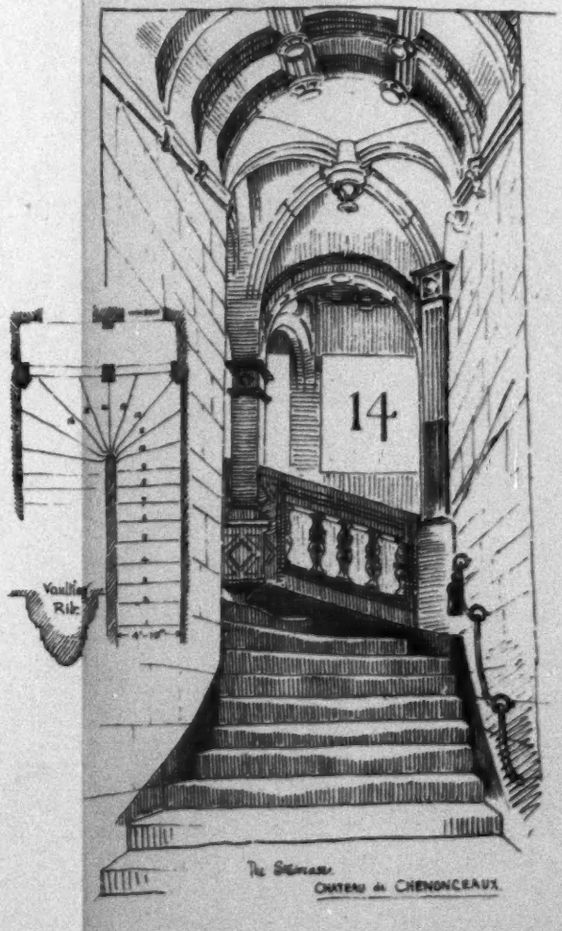
4.

STAIRCASE
CHATEAU DE CHAUMONT.



1.

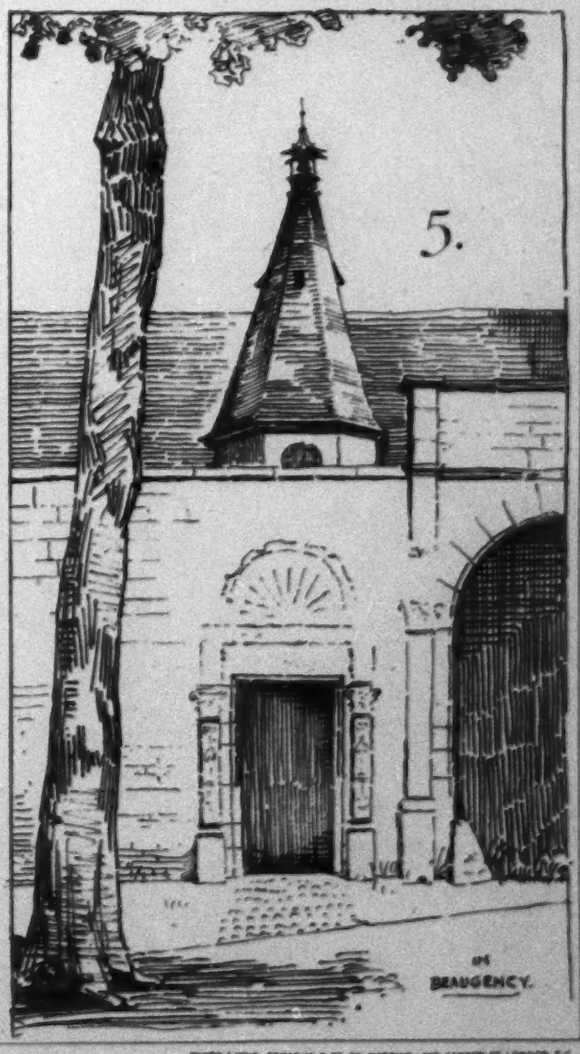
STAIRCASE
HOUSE OF FRANCOIS I. ORLEANS.



14

Vaulting Rib

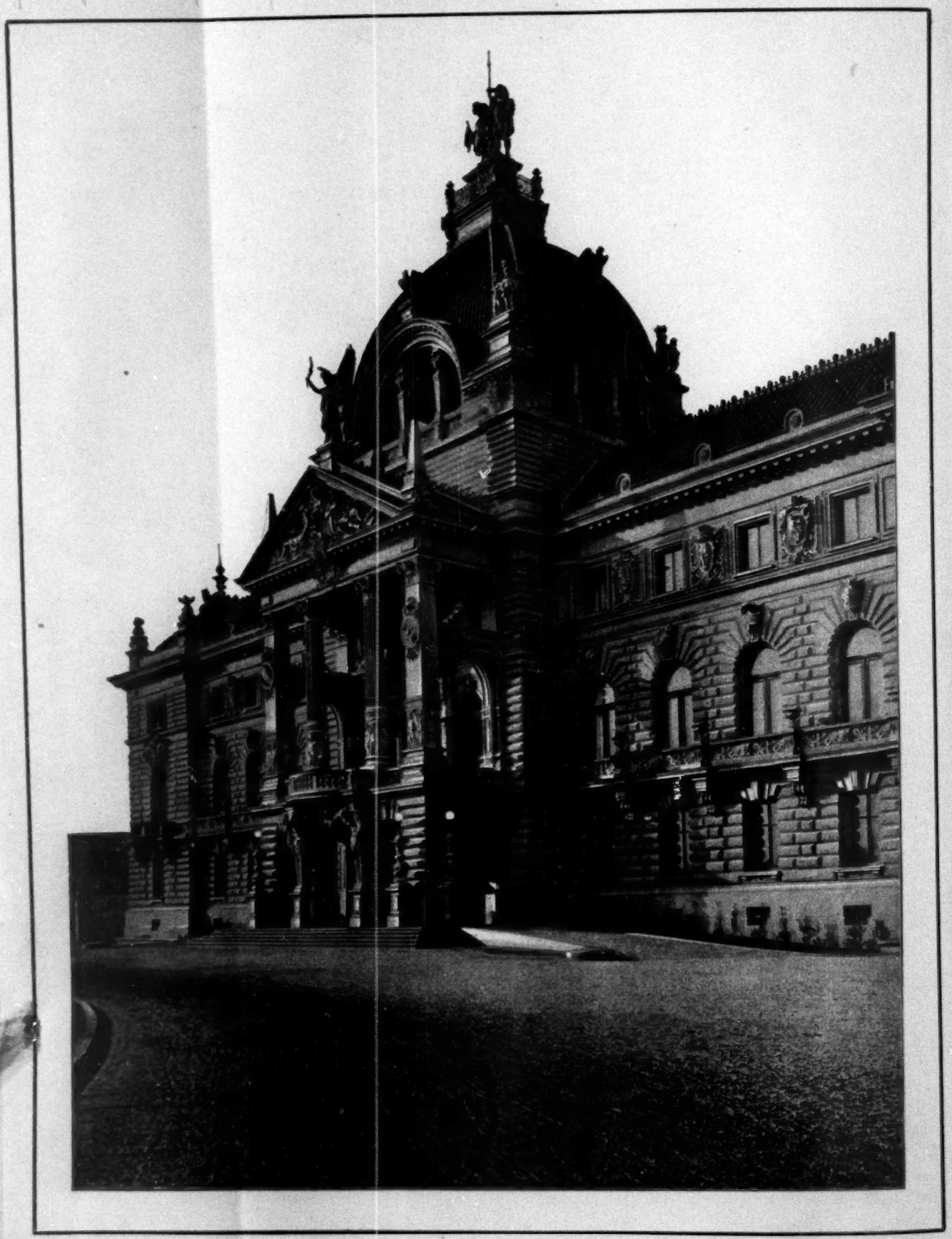
The Staircase
CHATEAU de CHENONCEAUX.



5.

BEAUGENCY.

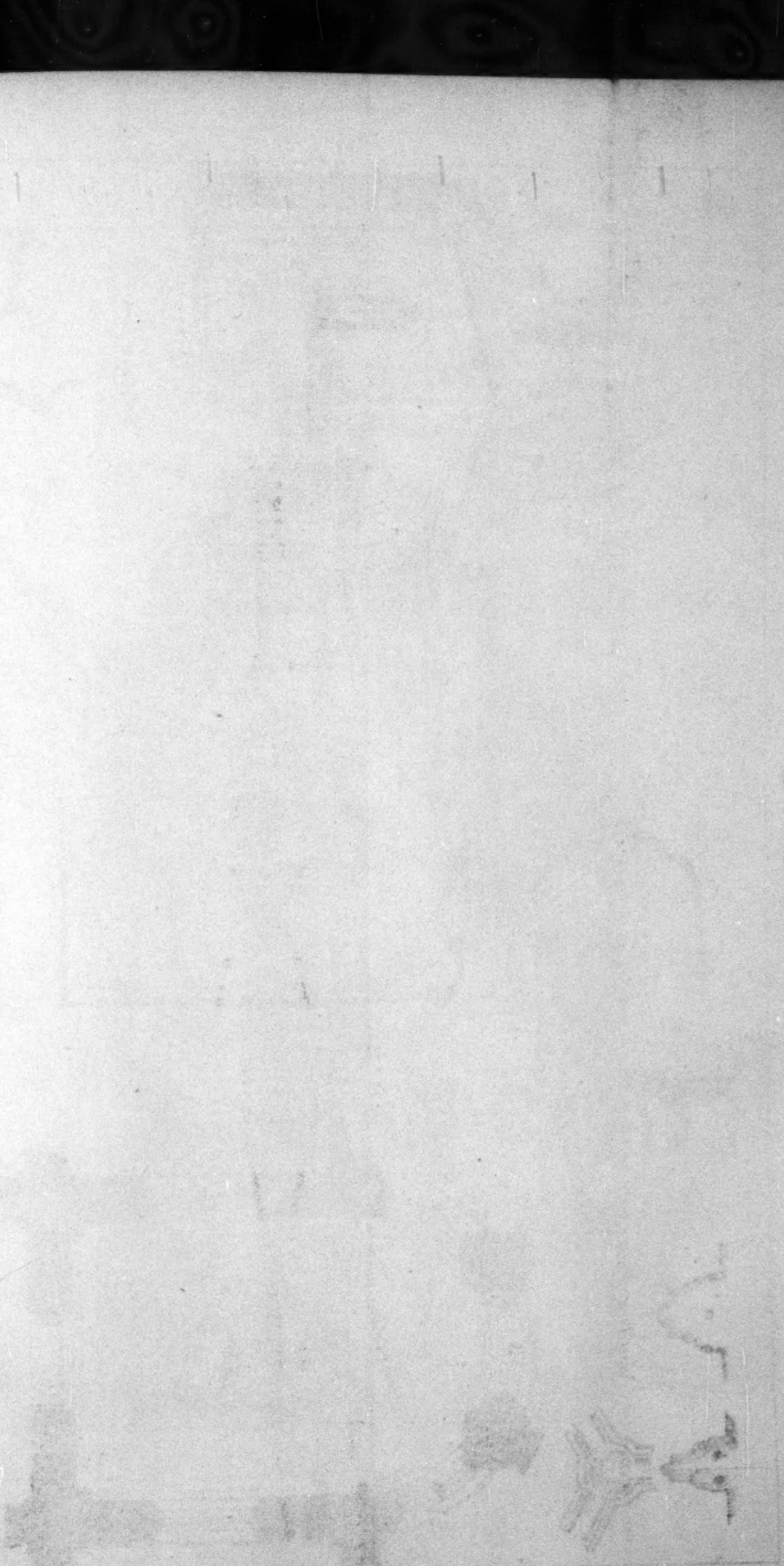
PHOTO-LITHO. SPRAGUE & CO. 362 MARTINS LANE, CANNON ST. LONDON, E.C.



The Phototype Co., 260, Strand, London.

THE IMPERIAL PALACE, STRASBURG. CENTRE OF PRINCIPAL FRONT.

HERR HERRMANN EGGERT, ARCHITECT.



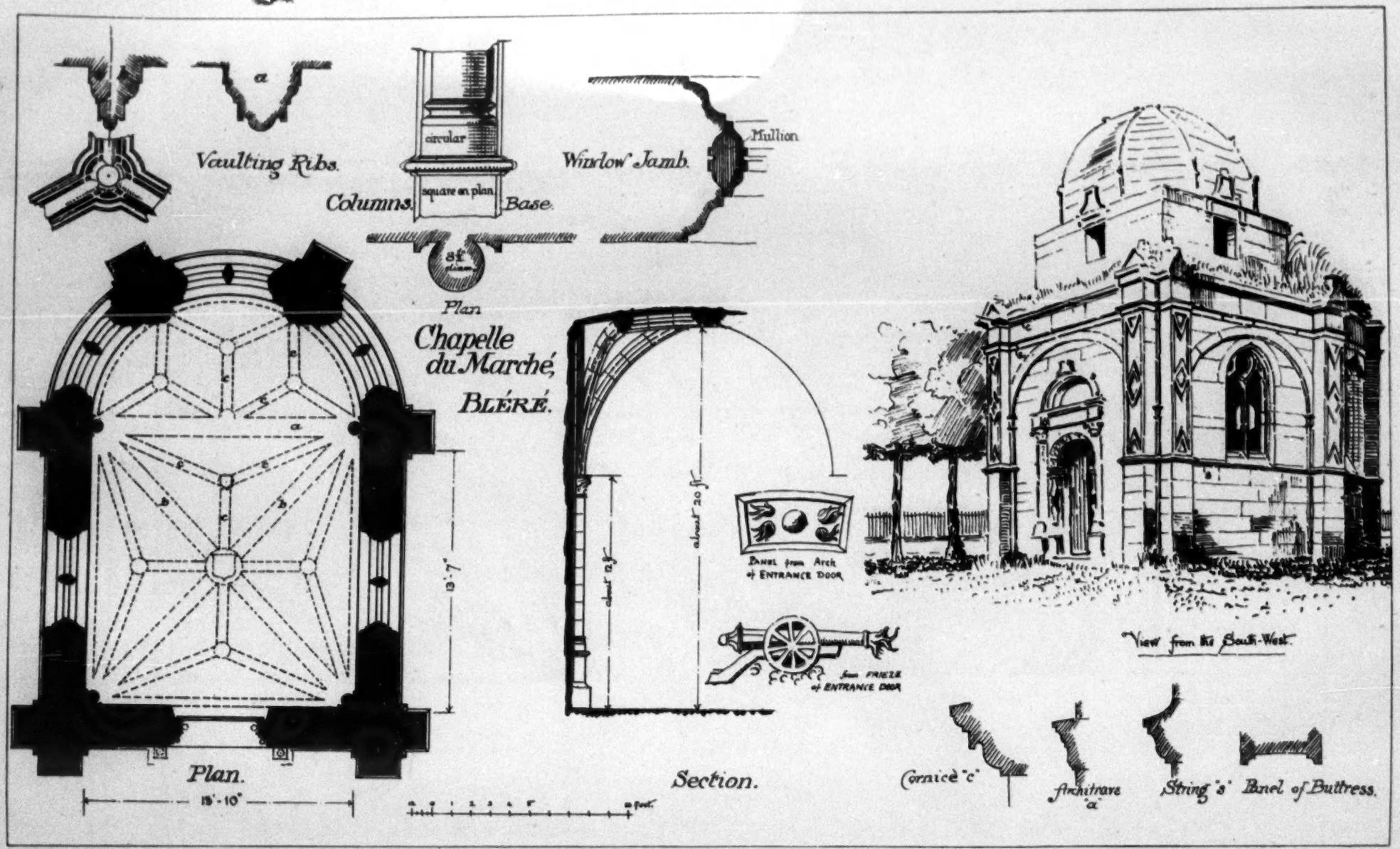
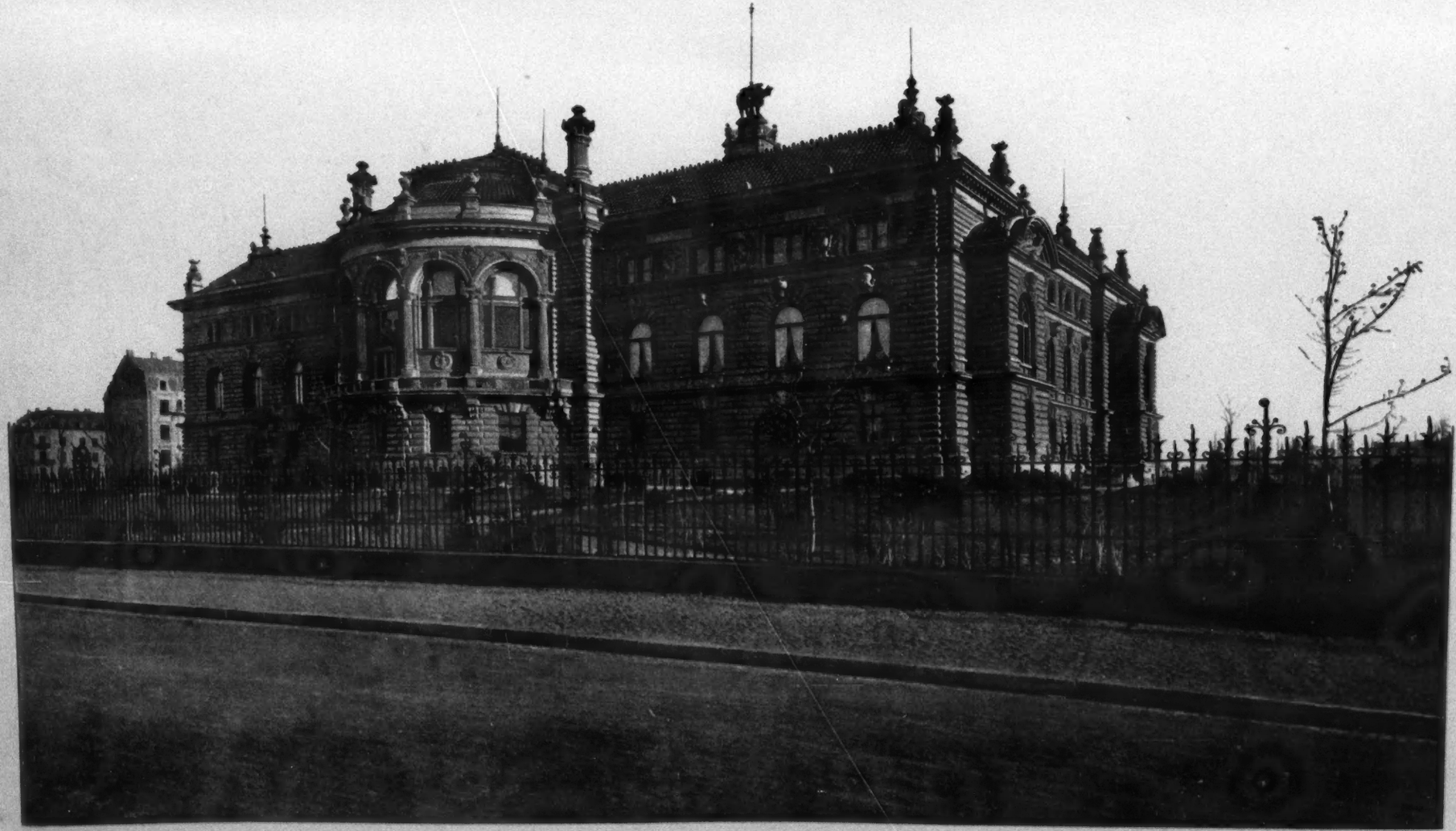


PHOTO-LITHO. BRAGUE & CO. 88, MARTINS LANE, CANNON ST., LONDON, E.C.

SKETCHES IN THE LOIRE DISTRICT.

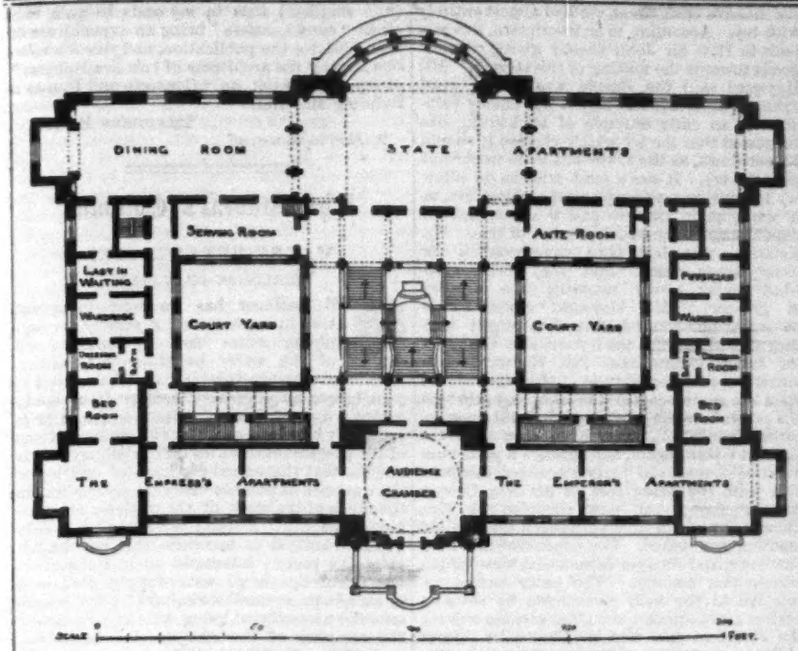
ST. ÉTIENNE, CAEN.—From a Drawing by Mr. R. J. Haines.



THE IMPERIAL PALACE, STRASBURG. GARDEN FRONT.

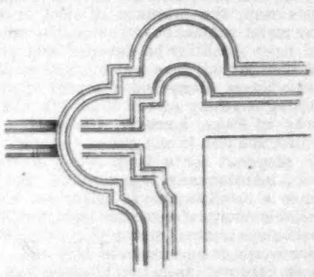
HERR HERRMANN EGGERT, ARCHITECT.

The Phototype Co., 355, Strand, London.



Imperial Palace, Strasburg.—Plan of Principal Floor.

finished in every detail. As an indication of the elaboration of detail gone to in this work, it may be mentioned that all the strap-work in this portion of the decoration is edged with narrow *double* fillets, gilt, as in the accompanying sketch of the detail at one corner of the



inscription tablet. The tablet is in black marble, and on it the following inscription is cut in bold Roman capitals:—

PIETATI ET BENEFICIÆ SACRVM
OBDORMIT HIC IN DOMINO GVILIELMVS PASTONVS EQVES
AVRATVS ANTIQVA ET NOBILI STIRPE ORTVS COGNATIONE
NOBILISSIMI FAMILIIS CONJVNCTVS HOSPITALITATE PERAMOS
LV ET POST MORTEM XX DVRATVRA CLARVS AD REPARAN-
DAS CATHEDRALES ECCLESIAS BATHONIÆ ET NORWICI
COLLEGIVM Q: GONEVILLI ET CAII MVNIFICVS PAVPERIBVS
VILLÆ YARMOVTHIÆ BENEFICVS QVI SCHOLAM IN HOC LOCO
AD INFORMANDAM JVVENTVTVM CONCIONESQ: AD DIVINV
VERBVM DISSEMINANDV REDITIBVS IN PERPETVVM ASSIG-
NATIS PIE INSTITVIT ET MORTALITATIS MEMOR HOC MO-
NVMENTVM CREIA SPE IN CHRISTO REDVRGENDI SIBI
VIVVS POSVIT
ANNO DNI 1608

The griffin and the helmet on the panel of armorial bearings are gilt; the rest of the panel, with its bold scroll ornaments, is painted a dull red tone to throw up the crest. The shields arranged round this panel are only here sketched approximately as to their general appearance; some of the detail would have been too small to show intelligibly on the drawing. H. H. S.

SKETCHES IN THE LOIRE DISTRICT.

The subjects of the three pages of sketches in the Loire district will be found referred to in the first article in our paper this week.

ST. ÉTIENNE LE VIEUX, CAEN.

This powerful little drawing, by Mr. R. J. Haines, was in the last Royal Academy Exhibition. In some respects it is rather too much like an imitation of the drawing of another period, but it is well done, and shows that the author can use his pen effectively in drawing. The building is one of the many desecrated churches in and about Caen; it is in a sadly deplorable state, being apparently used for some purpose akin to that of a Local Board dépôt. It is somewhat severe in treatment, but the tower and transept form a fine composition. The west front is more ornate.

The other "St. Étienne" at Caen is the fine Abbaye aux Hommes.

THE IMPERIAL PALACE AT STRASBURG.

Last week the daily papers described the tour made by the German Emperor through Alsace-Lorraine, and how on his arrival at Strasburg he stepped out on to the balcony over the portico of the palace there, in order to show himself to the people. We have on a previous occasion briefly alluded to this building, and we now publish the first-floor plan, with views of the garden-front and the central portion of the main façade.

Our readers are, of course, aware that on the termination of the Franco-German War, Alsace and Lorraine became not Prussian, but Imperial German provinces. The capital of Alsace had no building capable of being conveniently turned into an Emperor's residence; on the other hand, the new extensions of the city outside the old fortifications, and the laying out of new streets and squares in this new quarter, seemed to offer a good opportunity for the erection of such a structure. A site of suitable dimensions was therefore reserved for this purpose, and Mr. Hermann Eggert, an architect attached to the Ministry of Public Works at Berlin, was deputed to design and superintend the execution of the new palace.

A reference to the plan will show that the general arrangement consists of a parallelogram 223 ft. by 141 ft., with the covered entrance, hall, and grand staircase upon the central axis. Two courtyards, about 40 ft. square each, are placed on either side of the chief staircase, with wide passages running round them communicating with the various suites of rooms. The basement is devoted to the kitchen offices; the ground-floor contains the guard-rooms, aides-de-camp's offices, and living and mess-rooms, &c.; whilst the second-floor is taken up with bedrooms, &c., for the Imperial retinue. On the first-floor are the reception-rooms next the front, the banqueting-rooms at the back, whilst at the two sides are the Emperor's and Empress's private apartments. The style adopted is the florid Renaissance of the Berlin school, with heavily-rusticated masonry for the lower parts and the quoins of the projections, with lighter treatment upwards and delicately-moulded work for the columns and gable of the central loggia and dome. The stone is a yellow sandstone, and the roofs are covered with "Mettlach" red tiles. Fire-proof construction has been adopted throughout for the floors, and the roof-trusses and rafters are all of iron. No costly marbles, &c., have been used in the interior, the architect trusting to colour for the rich effect which he hopes to produce when the finely-finished surfaces are dry enough to admit of elaborate hand-painting.

COTTAGES AT DOULTING, SOMERSET.

The description of the cottages shown in one of our illustrations last week was accidentally omitted by our printers in "making-up."

The cottages were built about five years ago, for Sir Richard H. Paget, Bart., M.P., to fill up the void existing between two terraces of cottages. With these buildings erected the terrace became comparatively a long one for a village, and means of access for carts, &c., to the rear had to be provided for, which accounts for the archway. As it was not desirable to leave the archway open, and to meet the needs of pedestrians, the wrought-iron gates were formed the shape of the "V style" so common in this county. These gates, made by a village blacksmith, are interesting examples of artistic ironwork. The oriel window commands a view of the celebrated "Abbot's Barn." The idea in the design was to boldly break up the line of roofing by the large gable. One of the cottages is larger than the others; the two smaller contain two living-rooms, pantry, &c., and three bed-rooms each. The walls are built entirely of Doulting freestone, from Mr. Trask's quarries. The roofs are covered with slates. The builder was Mr. F. Pullen, of Shepton Mallet. The architect is Mr. George J. Skipper, F.R.I.B.A., of Norwich.

COMPETITIONS.

Cromer Town Hall.—In reference to this competition, the particulars of which were advertised in our columns, we are informed by the Secretary of the Cromer Town Hall Company, Limited, that about 150 applications were received for the conditions of competition, and that twenty-eight designs were sent in. The design selected was that bearing the motto "Experience," of which Mr. George J. Skipper, F.R.I.B.A., of Norwich, proved to be the author. The design bearing the motto "Elegance with Economy," by Mr. A. T. Scott, of Norwich, was placed second. Since this was in type we learn that Mr. Skipper has received instructions to prepare working drawings and specifications with a view to obtaining builders' tenders for the work.

Conservative Club, Accrington.—In the competition for this building, which is to be erected on a site extending from Cannon-street through to Paradise-street, three designs were sent in, bearing the mottoes "Beaconsfield," "1889," and "Primrose; his favourite flower." The *Accrington Observer* says that the names of the architects were not divulged until the Building Committee went into the merits of each design very carefully. They had the assistance of an experienced and disinterested expert, and after much consideration came to the conclusion that the design signed "Beaconsfield" was most suitable, subject to certain modifications. This recommendation was submitted to a meeting of representatives of the Primrose League and of the ward committees, and upon the designs being put to the vote, the design "Beaconsfield" was adopted unanimously, and on the sealed letters being opened it was found that the architects were Messrs. Morley & Woodhouse, of Bradford. The design is estimated to cost 7,350*l.* to carry out.

Allahabad under Water.—Very heavy rain recently fell at Allahabad and the surrounding district, which caused great damage to houses, a large number of which totally collapsed. In the city matters assumed a very serious aspect indeed, as the streets and lanes were completely under water, and presented the appearance of streams, rendering traffic, vehicular and pedestrian, most difficult. All the kutcha roads in the new civil station are described as having resembled miniature rivers, while the drains and the side-walks along the pucca roads were completely flooded. The local Meteorological Department registered 5·41 inches of rain up to 10 a.m. on the 24th inst. From the morning of the 22nd to 10 a.m. on the 24th no less than ten inches of rain fell, making the total from January 1 25·06 inches, against 15·07, the normal total.—*Indian Engineer* (July 31).

ESSEX ARCHÆOLOGICAL SOCIETY.

DELIGHTFUL weather favoured the annual gathering of the Essex Archæological Society, which took place on the 16th inst., in the Epping district. The following account is abridged from the *Essex County Chronicle* :—

The financial statement read by Mr. King showed a balance in favour of the Society of 51*l.* 19s. 3d. The report of the Council stated that the additional periodical meetings, commenced two years ago, had been very successful, and had been invariably well attended. During the year twenty-two members had joined, and the losses by death or otherwise had been very few. In October the Council resolved to reappoint local secretaries for the principal towns and districts in the county. Eight were appointed at the Coggeshall meeting, and others had since been added. It was hoped that this would conduce to the advantage of the Society. Referring to the congress of representatives of the leading archæological societies promoted by the Society of Antiquaries, and to the subjects then considered, the report stated that the Essex Society had since been admitted into union with the Society of Antiquaries. The union of the leading archæological societies of the kingdom for a common object ought to be regarded as the event of the year in connexion with archæology. The resolution of the Council to associate the Society with this work, the steps taken to increase the number of their own meetings, and their endeavour to extend the usefulness of the Society by the appointment of local secretaries, would no doubt meet with the entire approval of the members. Increased practical work would require corresponding financial support. The Society's share in the maintenance of the museum was a heavy item of expense, and their ability to secure objects which ought not to be lost to the county was restricted by their limited means. The Society was probably never stronger numerically, but the Council urged members to endeavour to secure further subscribers.

The Chairman (Mr. G. Alan Lowndes, President) moved the adoption of the report, and said he had had an exceedingly interesting correspondence with their friends in America. Owing to the large Puritan emigration from this part of England, the names of most of the places in Essex were reproduced in New England. There were Springfield, Colchester, Dedham, and many others. He had received copies of the "New England Historical and Geological Register," and he had been able to assist their American friends in certain ways.

Mr. Laver seconded the adoption of the report, which was carried.

Mr. Gould proposed that the President, Vice-Presidents, Council, and officers be thanked for their services, and that they be re-elected. He said he met two Americans at Ely the other day, and one of them said that the town which interested them most in England was Colchester, and that the thing which most interested them in Colchester was the museum. The resolution was seconded by Mr. C. F. Hayward, and carried.

The Chairman announced that the annual meeting next year would be held at Harwich, and that the October meeting would take place at Burnham.

Mr. Pritchard read an interesting paper on "English Ecclesiastical Seals of the Official Class." He produced examples of seals, including the matrix of the Bishop Stortford seal, found at Ipswich by Dr. Taylor. Only about thirteen of these seals were now known to exist.

A carefully-prepared paper, by the Rev. Cecil Deedes, on "The Preservation of Parochial Records," was read by Mr. King. Mr. Deedes dwelt upon the importance of preserving the secondary or subordinate records, and gave many examples of words peculiar to East Anglia. It was agreed that both papers should be printed in the Transactions.

Mr. King then read what was described as a remarkable Latin charter, dated 21st of May, 1485, by Robert Fabian, a citizen of London, author of "The Concordance of Histories," and an Essex man connected with Theydon Garnon.

After the meeting an adjournment was made to the Cock Hotel, where luncheon was served.

Luncheon disposed of, brakes were called into service, and the party drove through a delightful piece of country to Theydon Garnon Church. The edifice is in an isolated position, and is environed by trees. The chief feature is the massive brick tower, clothed almost entirely with ivy. According to an inscription, this was built in 1520, Sir John Crosby giving "by his goods towards the making of this steeple." Mr. Hayward said the steeple was a very good example of brickwork, and it was chiefly valuable as an early example of brickwork. He suggested that the ivy which clothed it should be cut down, as the tower was more important than the ivy. It was a fatal mistake to allow ivy to grow over a fine piece of architecture, as it was sure in time to pull it down, and he hoped some notice would be taken of this. Mr. Kemsley, who had been churchwarden for twenty-seven years, said they felt somewhat tender about removing the drapery of greenery. Mr. Hayward replied that he could understand this, but urged that they should sacrifice the ivy and save the tower for future generations. Mr. Hayward commented upon other features of the building and upon the monuments and brasses, and said that the present church was no doubt built upon an earlier foundation. Mr. King soon gave the signal to start again, and through a pretty undulating country the party proceeded direct to Hill Hall, the Essex seat of Sir Wm. Bowyer Smyth, Bart., but now occupied by Mrs. Cleland, by whose kind permission the fine old mansion was visited. The house crowns a bold eminence, and commands beautiful views of the surrounding country. The party having assembled in the hall, surrounded by valuable portraits, old armour, and other historic objects, the President said that Mr. Chancellor (Mayor of Chelmsford) was publishing a book upon the old monuments in the Essex churches, and had kindly sent him proofs of the description of the tomb in Theydon Mount Church. Another delightful drive brought the party to Albyns, the seat of Sir William Abdy, Bart., but now occupied by Mr. Humphrey. The party were very cordially welcomed by Mr. and Mrs. Humphrey. Albyns is a fine old mansion, and proved one of the most interesting places visited. It has been said that it was built by Inigo Jones; but this is doubted, and Mr. Hayward said he was unable to find any trace of the famous architect about the building. The great features of the mansion are the elaborately-worked ceilings, the fine oak panelling, and the massive and beautifully-carved oak mantelpieces. An inscription in the crest bedroom announces that "This house was repaired, sashed, and beautified by Sir John Abdy, Bart., 1754," but, as the Rev. T. Cochrane pointed out, the "beautifying" appears to have consisted in hiding the rich oak panelling of this particular room with a coating of paint. The oak room affords a fine example of panelling. While the party were in the spacious long room, which is 99 ft. in length, Mr. Cochrane made some observations upon the parish.

CONCRETE FLOORS.

SIR,—The communication of Mr. Frank Caws in your last issue [p. 141] contains the following:—"I have seen no instance supporting the theory that bending stress causes horizontal cleavage." Mr. Caws also quotes from the experience of "a contractor," in whose "many miles of street pavement and railway platforms" the cracks, when occurring, show "invariably, clean, square-edged fractures; exhibiting no shelliness nor the slightest indication of horizontal cleavage."

I assume that all the concrete work alluded to by Mr. Caws was made *without metallic tensional strength*: in which case, his observed facts were precisely what ought to have occurred, and what might have been reasonably expected. A crystalline material is a material tensionally weak, and a material tensionally weak (relatively) will be apt to exhibit no "*shelliness*," and break "with a clean, square-edged fracture." A widespread knowledge among architects and engineers of this quality in concrete, as in cast-iron, is, in my opinion, "the factor that intervenes," and not "prejudice," as suggested by Mr. Potter, in his very practical communication, the general tenour of which harmonises with the facts and conclusions of my own tedious and costly experiments and experience.

Mr. Potter's remarks about "specialists and patentees" touch me in tender spots, for I include myself in his category of "those who impart to the public knowledge gained by themselves at considerable"—(he might have said *enormous*)—"cost and time, *without any equivalent* but the consciousness," &c.; the last (and smallest) *item* in my costs to gain this sweet "consciousness" being an expenditure of over 300*l.* for the publication, and *free distribution* among the architects of two hemispheres* of my little work on "Concrete and Iron as a Building Material."

THADDEUS HYATT.

9, *Farringdon-road.*

The Student's Column.

WATER-SUPPLY.—IX.

QUALITIES OF WATER.

THE engineer has no more important task in commencing a scheme for supplying water than to ascertain the quality of the water he proposes to utilise. Whenever a paper touching on this subject is read before an engineers' society, it is sure to provoke a great deal of discussion, and it is peculiarly interesting to hear the varied opinions of the greatest authorities on the subject. It is obvious that the actual methods of arriving at the qualities of potable water do not lie within the scope of the work of the engineer or architect. The usual method is to employ a duly qualified analyst to ascertain this, and he advises the parties interested as to its quality. But the designers of water-supply, whether it be on a large or small scale, have for many years seen the necessity of being able to understand the meaning of the analyses for themselves, apart from the interpretation put on them by the analyst, and for this reason:—

To chemically analyse water is an extremely difficult operation, requiring the greatest skill and experience. Of course, it is easy enough to ascertain how much lime, iron, or such-like mineral matter is present, and it is not difficult to give, as precisely as may be, the actual proportions of these foreign ingredients, or to arrive at the total amount of solid matters. In this way, the presence of lead or other similar metal poison, or objectionable mineral, would most infallibly be detected, and professional men would have no difficulty whatever in immediately discarding a source of supply containing anything of the kind. In the vast majority of cases, however, the problem presented for solution is not quite so simple. The water proposed for a town supply, or for the uses of a mansion only, is generally of that kind which in a small sample is colourless, without appreciable odour, of agreeable taste, and minus the obnoxious mineral matter above alluded to; in other words, it *appears* to be very good. But we know very well, from actual experience, that water answering this description is frequently, nevertheless, of bad quality and extremely prejudicial to health.

The principal aim of the chemical analyst in dealing with water of this class, is to ascertain whether it is polluted with sewage, or other similar organic matter. It is in judging of the meaning of the results obtained by chemistry on this point, that the real difficulty commences. If ever there was a case where "doctors disagree" it is in discussing the best methods whereby the almost infinitesimal proportions of organic matter found in drinkable water may be determined, and in interpreting the meaning of the analysis, in regard to the effects of this matter (or rather the minute organisms which it feeds) on the human system, afterwards. Although an analysis may prove the existence of certain compounds, their origin and meaning are in many instances shrouded in doubt. Parts of the analysis, which, in the opinion of one chemist prove the existence of matter deleterious to health, are regarded by another, and equally good analyst, as harmless.

Yet another difficulty presents itself, which, within the past few years, has assumed formidable proportions. We allude to the "Bacteriological water-test," the object of which is to determine the presence of minute organisms of a deleterious nature in the fluid. Here we have another and distinct branch of science, whose exponents argue, with considerable force, that it is not wholly within the power of a chemical analysis to determine the quality of water in regard to its sewage contamination, that it cannot definitely state, in

* Additional to the cost of the work and its distribution through the post to the architects of America, I was compelled, when passing the Customs, to *pay duties* upon it—the United States Treasury, in the scandalous exercise of powers conferred on it by laws to "protect American industry," compelling me to pay on books given away to benefit its industries!—T. H.

many instances, whether the water is fit to drink or not.

In the meantime, the engineer or architect desires to satisfy himself as to the quality, and unconsciously arbitrates between the contending parties. To do this it is necessary for him to stand from afar and review the evidence brought forward by either side in a perfectly impartial spirit. He must understand, at least, the main outline of the arguments, and the relative value of the conclusions advanced, or he will most certainly not be able to arrive at a sound judgment in the matter. With this end in view we now propose to give the student some details of the nature of the controversy, both from the chemical and biological sides, but it must be borne in mind that space necessarily precludes our giving particulars as to many minor issues involved. We shall not neglect anything, however, that is material.

In the first place, samples of the water must be taken from places judiciously selected; in the case of a supply from a river, for example, as near the site of the proposed intake as possible. The collecting vessel must be quite clean, not merely rinsed out with water before taken to the place, but chemically clean. Care should be taken to exclude from it any foreign matter not normally found in the river, for it might obviously prejudice the result.

We will suppose that the chemist now takes the vessel in hand and analyses the water. We cannot, of course, follow him through the subtle processes involved in this delicate operation, but will now proceed to examine the result. Let us take, as a type, the published analysis of London water, as issued by the Registrar-General in his monthly return. In it there are nine columns, viz :—1. *Temperature in centigrade degrees.* 2. *Total solid matter.* 3. *Organic carbon.* 4. *Organic nitrogen.* 5. *Ammonia.* 6. *Nitrogen as nitrates and nitrites.* 7. *Total combined nitrogen.* 8. *Chlorine.* 9. *Total hardness.* The results of the analysis are expressed in parts per 100,000.

The *total solid matter* consists of mineral and organic residue, and the less this is in amount the better.

The *organic carbon* and *organic nitrogen* represent unoxidised organic matter, though whether the whole is the product of sewage, or animal contamination is doubtful. It is highly probable that much of it is derived from this source; but, inasmuch as the origin of the organic carbon,—as to whether it be animal or vegetable,—cannot be ascertained by chemical means, it is impossible to state definitely the danger actually implied by the organic carbon column. There is very little doubt, however, that some of it is of vegetable origin, and this would not be so deleterious to health as the remaining portion, which would be of animal origin. It is generally believed that if much more than 0·1 part of organic carbon derived from animal sources is present in 100,000 parts of water that the consumer is exposed to infection. Now, this is an important point to remember in enabling us to arrive at some conclusion as to quality. The student will see how little the chemical analysis proves in regard to it. The organic nitrogen is rather more definite in its meaning, and the less the amount of it as compared with the organic carbon, the better the water is likely to be.

Turning now to *ammonia* and *nitrogen as nitrates and nitrites*, it may at once be stated that these are mineral products of doubtful origin; but they are assumed by some eminent chemists to be mostly derived from sewage, privies, cesspools, farmyard manure, &c. According to Dr. Frankland, these animal products undergo oxidation, and when it is complete, they are resolved into mineral compounds, their carbon is converted into carbonic acid, and their hydrogen into water products, which can no longer be identified in the aërated waters of a river or spring; but their nitrogen is transformed partly into ammonia, chiefly, however, into nitrous and nitric acid, which, combining with the bases contained in most streams, frequently remain dissolved in the water for a long time, and constitute a record of the sewage and other analogous contamination to which it has been subjected since its last descent to the earth as rain. Such previous sewage, or animal contaminstion, is conveniently expressed in so many parts of average filtered London sewage as would, if thus completely oxidised, yield a like amount of nitrogen in the form of nitrites, nitrates, and ammonia. For this purpose average filtered London sewage has been assumed to contain ten parts of combined nitrogen in 100,000 parts.

According to this point of view, the column devoted to *total combined nitrogen* records, as well as the analysis is able to do, the amount of *previous sewage contamination*. Now, we may accept the truth of Dr. Frankland's remarks as to the oxidation of the animal products; but it may well be questioned whether any one can definitely state that the whole (or what part) of the total combined nitrogen is the result of previous sewage contamination. It has been long ago shown that springs may derive that nitrogen from the strata or rocks through which the water passes before issuing at the surface. It will be observed that there is considerable doubt in the matter of origin in either case.

If we accept the "previous sewage contamination" theory as it stands, we are led to the conclusion that the waters of many springs and wells at present used are open to grave suspicion on account of the high proportion of combined nitrogen found in them. We know, however, that in general, spring-water is very wholesome, and that it is very difficult to trace zymotic disease to it; whilst well-water (except in shallow or improperly-constructed wells), and especially that coming from limestones in the country, as a rule, is preferable in quality to the water of many rivers at present very largely drawn upon. For instance, the water of the Kent Company is of very good quality. Nevertheless, the monthly analyses show that this Company's water almost invariably contains a higher proportion of total combined nitrogen than that of the other water companies supplying the metropolis. The Kent Company's water is derived from wells in the chalk, and water which, like this, has undergone such elaborate filtration in soaking through rocks to such a depth is, as a rule, rendered exceedingly pure and wholesome, and that Company's water is certainly not an exception, in spite of the presence of so much combined nitrogen. In this connexion it should be noted that such spring and well water usually (we might say, naturally) contains a lesser quantity of organic carbon and organic nitrogen than ordinary river water (save in some exceptional cases, the causes of which are well known). Some doubt, therefore, may reasonably be raised as to whether its superior quality is not largely due to this circumstance, which might thus be presumed to outweigh, or at least tend to equalise, the injurious effects, if any, produced by the total combined nitrogen. If this be so, it very materially minimises the danger implied (following out the theory) by the total combined nitrogen. This leaves us to perceive that some knowledge of the history of the water is highly desirable, if not absolutely necessary, to assist us in arriving at our main conclusion. This is freely admitted, but is it not a sign of weakness in regard to the meaning to be attached to the chemical analysis? Does it not, at least, throw considerable doubt on the value of the column, "Total combined nitrogen?"

But let us pursue the subject further; for it is of great importance. We will admit, for the sake of argument, that the whole of the combined nitrogen *is* of animal origin. Now, what does it *prove?* Nothing, definitely. In itself it is, within reason, quite harmless, the supposed danger being that it is assumed to harbour the germs of disease. We say *assumed* advisedly, because it is not proven, and, what is more, there is no way of proving it. We are, therefore, led to perceive that so many assumptions, and so very few facts, lie at the bottom of this portion of the argument to guide us in forming an opinion as to the value of the seventh column, that we may well ask ourselves whether anything more than doubtful conclusions of extremely little value can be legitimately drawn from it.

In regard to *ammonia*, Prof. Wanklyn insists that water, to be of a sufficient degree of purity, should not contain more than ·08 part of albuminoid ammonia in a million, or ·0056 grain in a gallon.

The column *Total hardness* does not affect the controversy: it will be considered subsequently.

So much for the chemical side of the argument.

Russian Railways.—The earnings of the Russian State railways last year amounted to 13,950,000*l.*, being an increase upon the preceding year of about 1,450,000*l.*

CHURCH-BUILDING NEWS.

Stanton Drew, near Bristol.—The fine old double-naved church of the above parish was reopened, after reseating, paving, and general restoration, on the 8th inst., by the Lord Bishop of Bath and Wells. Several interesting features were found during the work, which have been carefully preserved. The restoration has been carried out from the plans and under the superintendence of Messrs. Lingen Barker, & Cross, of Weston-super-Mare.

Troon, Ayrshire.—A new church, erected in St. Meddan's-road, Troon, for the United Presbyterian congregation, has just been opened by the Rev. Dr. Taylor, of New York. The church seats, in nave and gallery, over 600 persons, and there are also a hall, ladies' room, vestry, &c., in connexion. An organ, by Messrs. Mirrlees, of Glasgow, has been placed in the church, and was used in the opening services. The buildings are of dark red freestone, from Ballochmyle Quarries, the style of architecture being fourteenth century Gothic of a Scottish type, and the tower and spire, rising over 120 ft., forms a conspicuous feature. Mr. John B. Wilson, Glasgow, was architect for the work, the contractors being all local. The total cost, inclusive of organ, bell, &c., is under 4,000*l.*

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

12,676, Ventilating. F. Pennefather.

This specification relates to an amplification of a previous patent, 11,287 of 1887, and in the specification many devices adapting the general principle in ventilation to special uses are shown. Air-collectors are an essential feature of the invention, and these are used in connexion with tubes or nozzles which communicate with the space to be ventilated or exhausted. The apparatus is arranged as an upcast or downcast ventilator, according as the air-collectors are placed above or below the distributing tubes.

14,733, Stonemasons' Points and Chisels. A. Robb.

According to this invention, cast-steel holders are made like the top part of an ordinary chisel such as is used by stonemasons; the top end has a rounded head for the wood mallet, and in a socket in the holder two bits are inserted, which hold a chisel and point as required. A slight tap with the mallet will remove the bits at once. When tools of the ordinary pattern are worn too short for the hand, they may be fastened in these holders and used up.

10,013, Window-sash Fasteners. J. Redden.

This invention relates to an improvement in devices for fastening from the inside either the top or bottom sashes of a window at any point of their respective travels. This fastening secures them in any position. A plate or tumbler is pivoted on an horizontal axis supported on a base fixed on the top of the bottom sash, the heavier part next the sash. The noses of the tumblers are partly straight and partly curved. The straight portion is parallel with and rests evenly against the side of the sash-frame. The curved portion is above the straight, and is struck eccentrically to the axis of the tumblers. Any attempt to pull the top sash down or push the bottom sash up will tend to depress the tumbler noses, locking both sashes in the position in which they had been intentionally left. A suitable device is employed for moving the tumbler-noses away from the sash frame.

10,072, Nail or Tack Extractor. W. A. Jack.

This relates to an apparatus for quickly and easily withdrawing nails, which consists of a lever part formed at one end with a foot resting upon the article from which the nail is to be withdrawn. Opposite the foot is a hook-shaped projection placed so as to engage with the head of the nail when forced against it. A striking head causes the extractor to be forced into the wood or material, and then the hook acting as the fulcrum and the lever as a handle the nail is easily withdrawn.

6,860, Hinges with Stays or Plates for Lodge Doors. J. Tall.

According to this invention, hinges are constructed with stays, straps, or plates, so that the boards can be filleted or chamfered before or after the hinges are affixed to the door stiles. Iron stays with an end formed with eyes for the pintles are fixed to fold or to extend all across the door, in which case it is prevented from buckling or warping.

NEW APPLICATIONS FOR PATENTS.

Aug. 12.—12,680, J. Judd, Expanding and Contracting Door, Window, Shop-front Guards, &c.—12,730, T. Hancock, Closing and Securing Gates and Doors.

Aug. 14.—12,803, D. Hoey, Trapping Soil-pipes, Drains, Sewers, &c.—12,829, T. Metham, Joiners'

Cramp.—12,836, W. Gordon, Water Cisterns or Tanks.

Aug. 15.—12,867, H. Whiteley, Draft and Dust Excluders for Doors, &c.—12,879, H. Lomot and W. Cotton, Fasteners for Doors and Windows.—12,889 and 12,890, T. Smith and R. Wager-Tayler, Cement or Artificial Stone.

Aug. 16.—12,932, J. Empson and J. Hewitt, Brackets for Cistern Pulls.—12,942, J. Howie, Siphon Flushing Cisterns.—12,949, J. Armstrong, Cisterns, Tanks, &c.

Aug. 17.—13,004, T. Routledge, Sash-fasteners.—13,007, H. Beaumont, Bolts for Doors, Gates, &c.—13,008, J. Wilson, Fire-resisting Flooring, Decking, &c.—13,009, J. Wilson and Others, Fire-resisting Partitions and Walls in Buildings.—13,028, H. Darby, Stoves for Warming or Heating Apartments, Buildings, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

9,137, G. Wilkes and J. Bishop, Attaching Door-knobs to Spindles.—9,813, O. Elphick, Syphon Flushing Apparatus.—10,069, W. Bird, Holders for Fanlights, &c.—10,080, J. Kempe, Water-closets.—10,237, J. Deeley, Syphon Flushing Cisterns.—10,305, J. Preston, Composite Metal Sash-bars and Frames for Glazing.—10,479, W. Baugban, Soldering-iron.—10,486, G. Smith, Ventilators for Sash-frames.—10,986, C. Brown, Pivot-adjustment for Swing-frames.—11,310, A. Brown and H. Pruce, Spindling Door-knobs, &c.—11,517, G. Hopkins, Wood Planing-machine.—11,558, A. Ridout and W. Hanson, Balancing the Weight of Window-sashes, &c.—11,715, V. Broughton, Combination Square, Mitre, and Bevel.—11,771, S. Banner, Paints or Enamels.—11,985, De Pennefather, Ventilating Rooms, &c.—12,179, J. Willcocks and J. Harrison, Bolt-fasteners for Sashes, Casements, Windows, &c.—12,180, J. Willcocks and J. Harrison, Sash-fasteners.—12,292, R. Condy, Compound to be used in Paint or Pigment.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

12,258, T. Whittaker, Hinges for Folding Doors, &c.—14,830, W. Derrick, Ornamentation of Glass.—14,870, T. Kromer, Door-locks, &c.—14,956, A. Brenner, Combined Latch and Bolt.—15,251, S. Grossmith, Automatic Flushing Cisterns.—10,305, J. Preston, Composite Metal Sash Bars and Frames for Glazing, &c.—11,052, F. Trabert, Centering Supports for Arched Constructions.—11,190, T. Descou, Preventing Sliding Window-sashes from being opened from the outside beyond a given point.—11,221, R. Davies, Brick-presses.

RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

AUG. 19.—By BENNINGFIELD & TIDY.

Islington—67, 68, and 69, Roman-rd., u.t. 69 yrs., g.r. £16, r. £86 p.a. £925
Enfield—Slades-hill, "The Willows" and a plot of land, f. 510

By NOKES & NOKES.

Islington—5, 6, & 7, St. George's-yd., u.t. 62 yrs., g.r. £18 300
West Kensington—19, Wharton-rd., f., r. £45 p.a. 620

AUG. 20.—By R. H. EVANS.

Holloway—21 and 23, Scholefield-rd., u.t. 65 yrs., g.r. £10 196
Bansbury—6 and 7, Everilda-st., u.t. 64 yrs., g.r. £7, r. £56 p.a. 525
Caledonian-rd—65, Pembroke-st., u.t. 60 yrs., g.r. £5, 5s., r. £50 p.a. 460
67, Pembroke-st., u.t. 60 yrs., g.r. £5, 5s. 285
l.g.r. of £10, 10s., u.t. 60 yrs., at a g.r. of £3 160
l.g.r. of £15, 15s., u.t. 60 yrs., at a g.r. of £3 p.a. 235
72, 73, and 75, Bingfield-st., u.t. 60 yrs., g.r. £5, subject to an annuity of £10 p.a. 760
79, Pembroke-st., u.t. 60 yrs., g.r. £5, r. £52 p.a. 455

By WALTON & LEE.

Bushey-heath—"The Holmstead" and 2a. 1r. 12p., f. 1,050

AUG. 21.—By WYATT & SON.

Portfield, Sussex—Six f. houses in Florence-lane ... 615
Six f. houses in Bottle-lane 425

AUG. 22.—By DYER, SON, & HILTON.

Plumstead—The Plumstead Tabernacle and house adjoining, u.t. 70 yrs., g.r. £5, 12s. p.a. 460

By C. C. & T. MOORE.

Bow—36, Cardigan-rd., f., o.r. £30 p.a. 330
Mile End—1, 3, and 5, Hunt-st., 1 to 11, John's-pl., u.t. 44 yrs., g.r. £42, r. £193. 14s. p.a. 100
Mile End-rd.—No. 453, u.t. 13 yrs., g.r. £7, o.r. £43 p.a. 200
East India-rd.—80, 82, and 84, Tetley-st., u.t. 53 yrs., g.r. £9 510
Stoke Newington—79, Alkham-rd., u.t. 93 yrs., g.r. £6, o.r. £34 300

By T. C. KING.

Greenwich—1 to 4, Fry's-court, u.t. 64 yrs., g.r. £11 50
North Kensington—1, 3, and 5, Adair-rd., u.t. 76 yrs., g.r. £21, r. £101 735
Ealing—The residence "Blytheholme," u.t. 80 yrs., g.r. £8. 8s., o.r. £40 425
The residence "Rose Lodge," f., r. £36 p.a. 500
Villa-residence in Chapel-rd, u.t. 67 yrs., g.r. £4, o.r. £40 430

By NEWSON & HARDING.

Kentish Town—16, Victoria-rd., u.t. 49 yrs., no g.r., r. £45 460
Camden Town—47, James-st., u.t. 88 yrs., g.r. £5, r., £32 p.a. £370
6, Stanley-pl., u.t. 40 yrs., g.r. £3. 5s., r. £36, 8s. 190
1, 2, & 3, Stanmore-pl., u.t. 34 yrs., g.r. £12, r. £90. 8s. 400
6, Great College-st., u.t. 18 yrs., g.r. £5, o.r. £45 p.a. 275
New Cross—73 and 74, Besson-st., u.t. 85 yrs., g.r. £8, r. £83 250
Commercial-rd.—45, Clarke-st., u.t. 11 yrs., g.r. £4 r. £34 140
17, Wellesley-st., u.t., 34 yrs., g.r., £3. 10s., r. £28 195
94, Rutland-st., u.t. 9 yrs., g.r. £3. 10s., o.r. £26 70
Pentonville—25 and 29, Pentonville-rd., u.t. 20 yrs., g.r. £23. 13s. 4d. 455

[*Contractions used in this list.*—F.g.r. for freehold ground-rent; L.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; yd. for yard, &c.]

MEETINGS.

MONDAY, SEPTEMBER 2.

Clerks of Works' Association (Carpenters' Hall).—Monthly Meeting. 8 p.m.

TUESDAY, SEPTEMBER 3.

Glasgow Architectural Association.—Mr. W. Beaton on "The Decorated Style of English Gothic."

WEDNESDAY, SEPTEMBER 4.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting. 8.30 p.m.

Association of Public Sanitary Inspectors.—Summer Meeting at Folkestone.

Miscellanea.

Technical Education and Registration of Plumbers.—A course of instruction has been arranged for apprentice plumbers, at the Merchant Venturers' School, Bristol, between October 1 and the end of April. The course will comprise subjects specified in a special syllabus prepared by the Plumbers' Company, among them being elementary geometry in its various relations to plumbers' work; the elements of descriptive geometry, with special reference to the reading of working drawings; freehand drawing, including dimensioned sketches; hydrostatics and hydraulics as far as necessary to make pupils understand the action of simple appliances; chemistry and metallurgy. Workshop practice will be conducted on two nights in the week. The course of instruction will be assisted by demonstrations in the chemical laboratory, and will be followed by examinations, at which prizes will be awarded by the Company.—At the Examinations of Plumbers for Registration, held on Saturday last at the Guild's Institute, applicants were present from various parts of London, as well as Salisbury, Oxford, Worcester, Reading, Gosport, Swansea, and Derby. The examinations embraced tests in lead-laying, joint-making, &c., and a set of questions relating to the qualities of materials, the construction of various forms of house-fittings, and the principles of sanitation. The examiners were Messrs. Charles Hudson, J. C. Ashdown, C. T. Millis, G. Davis, and L. F. Gilbert, representing the United Operative Plumbers' Association of Great Britain and Ireland. Nearly two-thirds of the applicants succeeded in passing the examinations, one half of these being masters and the other half operatives.

St. Alban's Abbey.—The preliminary steps in the proceedings between Mr. Henry Hucks Gibbs and Lord Grimthorpe as to the right of the former to restore the high altar screen and the Lady Chapel in St. Alban's Cathedral, took place on the 15th inst., before Mr. F. H. Jeune, Q.C., the Chancellor of the diocese. Lord Grimthorpe was represented by Mr. Knight, and Mr. Gibbs by Sir Walter Phillimore. The Chancellor gave directions as to the mode in which the evidence should be taken, and appointed November 9 for the hearing of the case.

Building Trade Wages in Providence, New York.—According to a recent report of the British Consul at New York, the prevailing rates at Providence are as follow:—Bricklayers, 14s. 7d. per day; carpenters, 9s. 4½d.; gasfitters, 12s. 6d.; masons, 11s. 5½d.; painters, 10s. 5d.; paviors, 9s. 4½d.; plasterers, 14s. 7d.; plumbers, 12s. 6d.; labourers, 6s. 5d. Intending emigrants from England should take into account the higher cost of living, and that the wages quoted may be paid only to experienced and skilled workmen.

The Manchester Ship Canal.—The half-yearly meeting of the Manchester Ship Canal Company was held at Manchester on Monday. The chairman of the directors, Lord Egerton of Tatton, presided, and moved the adoption of the report. He said no unforeseen difficulties had arisen in the actual work of the canal with regard to the physical nature of the obstacles they had to encounter. Two large docks were very nearly finished at Salford, and the river had been successfully diverted to form a third arm of the Manchester and Salford Docks. The works at Pomona-gardens were advanced. At Eastham very good progress had been made with the large locks at the entrance to the canal. Out of the 44,143,284 cubic yards which were estimated as the quantity of excavation required, there were only 25,060,666 cubic yards remaining to be excavated. At the present rate of progress the whole of the excavations would be carried out within three years from the commencement of the canal. Sir J. Lee, in seconding the motion, said the neighbouring railway companies were now disposed to converge to the ship canal docks and wharves. Parliament would have to be asked to authorise the required works, and at a future meeting in October particulars of the necessary capital would be submitted. Mr. Brown, a resident on the Bridgwater Canal, complained of the abominable stench arising from the canal during the summer months. The Chairman said the people to complain of were the local authorities who polluted the Medlock. The report was adopted.—*Times.*

"Gransorbian."—This, according to the *Liverpool Journal of Commerce*, is the name of a photo-graining paper which has been designed to effect a reduction in cost to the extent of 75 per cent. as compared with the usual method of graining. The paper is made in continuous rolls, and presents the appearance of a wooden block cut for printing purposes. It is prepared for a variety of woods, and in each instance the pattern is made 6 ft. 6 in., without a repeat. It is available for either oil or distemper graining with equal facility of manipulation. The process is exceedingly simple, and, therefore, easily acquired. Four pieces of paper are cut to the size of the door-panels, and another piece for the lock-rail. The graining colour, of half oil and half turps, is mixed with the other ingredients in the usual proportion, and the door is rubbed in. Other arrangements having been made, the "Gransorbian" is laid against the top panel directly, as the absorbent properties of the paper are so great that wherever it touches it lifts the colour, and therefore it is a necessity that it should touch only the place where it is wanted. Precautions are also taken that the grain is pressed equally over every part of the surface, an essential consideration being that the paper does not move, and the operation is completed in a very limited space of time.

Civil and Mechanical Engineers' Society.—The following is the list of officers and members of Council of this Society for the ensuing session:—*President*, Mr. Henry Adams, M.I.C.E., M.I.M.E.; *Vice-Presidents*, Messrs. R. Nelson Boyd, M.I.C.E., F.R.G.S., and John Coates, A.M.I.C.E., F.G.S.; *Members of Council*, Messrs. W. Lee Beardmore, A.M.I.C.E., E. H. G. Brewster, A.M.I.C.E., George C. Child, A.M.I.C.E., Thomas Cole, A.M.I.C.E., B. Houghton, C.E., H. Ellis Hill, A.M.I.C.E., T. B. Lightfoot, M.I.C.E., R. E. Middleton, M.I.C.E., M.I.M.E., Ambrose A. Myall, A.M.I.C.E., G. W. Thompson, A.M.I.C.E., R. H. Twigg, M.I.C.E., F.M.S., A. T. Walmisley, A.K.C., M.I.C.E., and J. B. Walton, M.I.C.E.; *Auditors*, Messrs. J. H. Turner, A.M.I.C.E., and E. S. Mansergh; *Hon. Solicitor*, Mr. Roger H. Willcocks, LL.B.; *Hon. Treasurer*, Mr. William C. Street, A.R.I.B.A.; and *Hon. Secretary*, E. L. W. Haskett-Smith, A.K.C., A.M.I.C.E.

Removing Old Paint.—The ordinary process of scraping old paint, or burning it off, is hardly expeditious enough for general purposes, and is also laborious. The *Scientific American* says that soda and quicklime are far more thorough, and the paint is more quickly removed. A solution of half soda and half quicklime is made by first dissolving the soda in water, and then adding the lime, when the solution is ready for application with an old brush. A few minutes are sufficient to remove the coats of paint, which may be washed off with hot water. A coating of vinegar or acid should be applied to cleanse the surface before repainting.

The West-end Fever "Scare."—We must confess that we have considerable sympathy with those who are regarded as having indulged in the so-called "fever scare" in the West-end. It is true that the outbreak has been limited, that it has been mild in character, and that it has not cost many lives, but the mere fact of a number of houses scattered over a wide area being simultaneously attacked with this disease is in itself a matter for anxiety; and the circumstance that the houses attacked were of a sort to make it practically impossible that the disease was due to any ordinary sanitary defects attaching to the drains or otherwise is the reverse of reassuring. For our part, we think that the circumstances of the outbreak justify a strong suspicion against milk as the vehicle of the infection, and this aspect of the question will doubtless be thoroughly looked into. Indeed, the President of the Local Government Board has promised that the inquiry made into the outbreak by Dr. Corfield shall now be supplemented by further investigation of the circumstances by one of the medical inspectors of his department. In the meantime, we would, as we have often done before, urge that safety in the consumption of milk cannot be expected unless the consumers boil or otherwise cook all milk used in their households. There is, in all probability, no article of food which is so apt a vehicle of the contagia of disease as milk in its natural state. —*The Lancet.*

Progress of Vancouver, British Columbia.—According to a recent issue of the United States *Army and Navy Journal*, Vancouver has had a wonderful revival since its partial destruction by fire in 1886. Brick buildings have taken the place of dilapidated shanties, a City-hall, a hospital, and two fire stations (all substantial buildings), have been erected, also three fine bridges. Twenty miles of streets have been laid out, a system of sewage commenced, tubular tanks built for protection from fire, and a magnificent road nine miles in length constructed round the 950 acres of the natural park called Stanley Park. The city is lighted by electricity, supplied with abundance of purest water under high pressure from the neighbouring mountains, and is a model of cleanliness, comfort, and health.

The English Iron Trade.—The English iron market is only moderately active, but has grown stronger since last week. Pig-iron has recovered from the slight reaction which we noted a week ago, and where prices have not advanced they are held very stiffly. The most notable rise has taken place in Scotch makers' iron, nearly all brands of which are 1s. a ton dearer. Scotch iron would be much higher if it were not for the heavy stocks. The finished iron market keeps fairly active, and very firm. The orders for steel are still abundant, which state of affairs contributes to the buoyancy of prices. Steel rails are quoted 2s. 6d. a ton more. Shipbuilders are still booking fresh work, and the prospect for the winter is most cheering. The position of engineers continues equally satisfactory.—*Iron.*

Association of Public Sanitary Inspectors of Great Britain.—The annual summer meeting of this Association will be held at Folkestone on Wednesday next, September 4. The Mayor of Folkestone will receive the Association in the Exhibition at 11 a.m., and will open the proceedings. Addresses will be delivered by Dr. W. Bateman, J.P., Medical Officer of Health, on "Sanitation in Folkestone," and by Dr. C. E. Fitzgerald, M.D., on "Sanitary Advantages of Folkestone." After luncheon at the Town Hall, the party will proceed to view the Folkestone Gas Works, and will afterwards visit the Water Works.

German Enterprise in Greece. — The Belgian Consul at Athens, in a recent report to his Government, draws attention to the great increase of German manufactures imported into Greece. It appears that some enterprising German industrial firms have established an agency in Athens, where drawings and models of Greek industrial requirements are shown, and every other information given. German manufacturers are reported to have benefited largely through this agency.

Walworth Wesleyan Chapel and school premises have been re-opened after renovation and interior decoration in colour. The work has been executed by Mr. Charles Goad, of Camberwell-road, from the designs and under the direction of Mr. T. E. Lidiard James, architect, London.

The Howard Estates.—The Earl of Carlisle has resolved to sell, either by auction or by private contract, various portions of his estates situated in the counties of Northumberland and Cumberland. For purposes of sale these are divided into nine divisions, whilst several of the divisions can be sub-divided into a large number of lots, to meet the convenience of purchasers. The tale of the properties is a long one: we will mention the most important. In Cumberland: Irthington, — Morrel Hill and Breakstock farm, 833 acres; estimated rental, 314*l.* per annum; Lanercost, — Butterburn (2,240 acres) and Redsike (1,370 acres), two sporting properties on the Irthing, lying north of Gilsland; and Ainstable,—Low Hall, on the Eden, near to Ulleswater, a residential estate of about 235 acres, rented at 222*l.* 19s. a year, together with Dale Mills, on Croglin Water. In Northumberland, being the Morpeth Estates: Mitford and Morpeth,—Benridge, comprising five farms with other holdings, 1,067 acres, and 80 acres of woodland, having an annual rental value calculated at 950*l.*; Morpeth, Stannington, Nutford, and Bedlington,—the Stannington, Tramwell, and Netherton estates, comprising 100 lots, which include all the villages of Stannington, Hepscott, and Netherton, together with Netherton Hall,—8,512 acres in all, 10,360*l.* annual rental; Ulgham, the manor and village of that name, five miles distant from Morpeth, with the advowson and next and perpetual right of presentation to St. John's vicarage, representing seventeen lots, which include Ulgham Park (571 acres) and Northwood House,—2,198 acres in all, which yield about 2,123*l.* a year; Knaresdale,—Softley, a residential and sporting property, on the South Tyne, of 1,300 acres; and Morpeth,—Cottingwood Farm and the long-established tilery, with the plantations known as How Burn Wood, West Nursery, and Windmill Nursery, 216 acres, let for 240*l.* per annum. The sales will thus cover an aggregate of 18,559 acres, producing a total income of, say, 16,000*l.* a year.

Porous Earthenwares.—We have received a circular issued by the "International Terra-Cotta Lumber Company" of Chicago, setting forth the character and uses of their porous earthenwares, which are patented as "Terra-cotta Lumber," "Brickwood," Cellular Pottery," and "Holstein" or "Woodstone," a class of material which, making every allowance for a manufacturer's predilections, seems to have qualities which claim the attention of architects and builders on this side of the water. As described by the makers, these materials "are the burned products of compositions of earthy and vegetable matters, such as clay or clayey loams, sawdust and cut straw, first made plastic by the addition of water, in machine-mixing processes, and subsequently pressed into desired forms by heavy power, and finally dried and burned as bricks are dried and burned. The vegetable matters in the dried compound,—proportioned to the clay as three parts, or more, by measure, to two,—serve as fuel for burning the clay, none other being needed after ignition is once effected, and when eliminated from the compound by combustion, leave a bricken residue so porous that its weight is less than half the weight of common building brick, and which can be nailed and tooled with carpenter's tools with the facility afforded by soft pine lumber." The proof of course is in the using; but if the above description is a fair one, there ought to be a field for the material in practical building work. It is specially recommended we observe, among other things as a fireproof jacketing for iron columns.

The Nordenham Dock and Harbour Project.—The *Frankfurter Zeitung* states that the project formed by an English syndicate of constructing a large harbour and extensive docks at Nordenham, in Oldenburg, at the mouth of the Weser, to which we referred some while ago, has fallen through, the promoters being unable to raise the funds required, although the Duchy of Oldenburg guaranteed 5 per cent. interest for seven years.

Upsala Cathedral. — The restoration of the Cathedral of Upsala, the most ancient in Sweden, which has been in progress for the last three years, is now more than half-finished, the interior being particularly advanced. The cost up to the present has been 25,000*l.*

Norwegian Tramways.—The Christiania tramways appear to be profitable, a dividend of 5½ per cent. being paid for last year.

Proposed Technical Museum for the Potteries.—The *Staffordshire Sentinel* says that the proposed provision of a well-established Technical Museum for the Staffordshire Potteries, to be located in Hanley, in accordance with the unanimous decision of the Chamber of Commerce and the Iron and Steel Institute of North Staffordshire, at length seems to be within measurable distance of realisation, and the prospects of the addition of this desideratum to the district have latterly grown very bright and encouraging. The arrangements of those bodies have proceeded most satisfactorily, and now appear to be rapidly approaching completion. On Wednesday, Sir Philip Cunliffe Owen paid an unexpected visit to Hanley, and examined the old Mechanics' Hall, which has been placed at the disposal of the Museum Committee by the Town Council of the borough. He was accompanied by John Ridgway (representing the Chamber of Commerce), Mr. Alderman Cooke (representing the School of Art), and Messrs. Alderman Powell and Hammersley. Sir Philip carefully considered the plans for the alteration and improvement of the building, as suggested by Mr. Sugden, the architect employed by the Chamber of Commerce, and he expressed himself highly pleased both with the capacity of the room and the architect's proposals. He most generously promised to expedite, as far as he possibly could, the establishment of a museum for the district, and made some suggestions as to the manner in which the room could be best fitted for the purpose.

Termination of the Bricklayers' Strike in Dublin.—The *Freeman's Journal* reports that on Monday morning a large number of the Dublin bricklayers who went out on strike for higher wages some weeks ago, returned to their work under the arrangement entered into by his Grace the Archbishop of Dublin and the arbitrators selected by the trade society and the employers. However, a considerable number of the men having left the city after the strike began, were not able to avail themselves of the arrangement, but the majority of them were expected to be back in their places before the end of the week. A very largely attended meeting of the bricklayers was held on Monday night in the Bricklayers' Hall, Cuffe-street, when the decision of the arbitrators was unanimously approved of.

The Southwark Foundry Company.—The new and extensive premises of the Southwark Foundry Company, Limited, in Orange-street, Southwark, have been opened. They have been erected by Messrs. Holloway Bros., under the superintendence of Messrs. Ford & Hesketh, architects, and are replete with every facility for the carrying on of a very extensive business. The company's works adjoin those of Messrs. Hayward Bros. & Eckstein, of Union-street, Borough, the manufacturers of semi-prism pavement lights.

Re-opening of the Victoria Hall as the First People's Palace for South London.—The Victoria Hall, Waterloo-road, will re-open this Saturday, Aug. 31, with a variety entertainment. On Tuesday, Sept. 10, Professor Malden will lecture on the "Paris Exhibition," with specially-prepared views. This will be an opportunity for the poorest to obtain some idea of the Exhibition.

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ... ton	7	0	0	7	15	0
Teak, E.I. ... load	12	0	0	14	0	0
Sequoia, U.S. ... foot cube	0	3	3	0	3	6
Ash, Canada ... load	3	10	0	5	0	0
Birch ,,	3	10	0	6	0	0
Elm ,,	4	0	0	5	0	0
Fir, Dantsic, &c.	3	0	0	3	10	0
Oak ,,	3	10	0	6	10	0
Canada	5	10	0	7	10	0
Pine, Canada red	3	0	0	4	0	0
,, yellow	3	10	0	5	5	0
Lath, Dantsic ... fathom	4	10	0	5	10	0
St. Petersburg	5	0	0	6	10	0
Wainscot, Riga, &c. ... log	3	15	0	4	5	0
Deals, Finland, 2nd and 1st ... std. 100	9	0	0	11	0	0
,, 4th and 3rd	7	0	0	8	15	0
,, Riga	7	0	0	9	0	0
St. Petersburg, 1st yellow	11	0	0	15	0	0
,, 2nd ,,	10	0	0	11	0	0
,, white	7	0	0	10	0	0
Swedish	8	0	0	15	0	0
White Sea	9	0	0	17	0	0
Canada, Pine, 1st	16	0	0	23	0	0
,, ,, 2nd	11	0	0	17	10	0
,, ,, 3rd, &c.	5	0	0	10	10	0
,, Spruce, 1st	9	0	0	11	0	0
,, ,, 3rd and 2nd	7	0	0	9	0	0
New Brunswick, &c.	6	10	0	8	10	0
Battens, all kinds	6	0	0	15	0	0
Flooring Boards, sq., 1 in., prepared, First	0	11	0	0	14	0

TIMBER (continued).	£. s. d.	£. s. d.
Weather Boards, sq. 1 in., prepared (cont.)—		
Second	0 8 0	0 10 0
Other qualities	0 5 6	0 7 9
Cedar, Cuba ... foot	0 0 4½	0 0 5
Honduras, &c.	0 0 4½	0 0 4¾
Mahogany, Cuba	0 0 4½	0 0 6½
St. Domingo, cargo average	0 0 4½	0 0 6½
Mexican "	0 0 4½	0 0 5½
Tobasco "	0 0 5½	0 0 6½
Honduras "	0 0 5¼	0 0 6½
Box, Turkey ... ton	4 0 0	13 0 0
Rose, Rio	15 0 0	20 0 0
Bahia	14 0 0	18 0 0
Satin, St. Domingo ... foot	0 0 6	0 1 0
Porto Rico	0 0 9	0 1 3
Walnut, Italian	0 0 4½	0 0 6½
METALS.		
Iron—		
Pig, in Scotland ... ton	45 15 0	0 0 0
Bar, Welsh, in London	5 5 0	5 10 0
" " at works in Wales	4 15 0	5 0 0
" Staffordshire, in London	5 10 0	6 10 0
Copper—		
British, cake and ingot ... ton	47 10 0	0 0 0
Best selected	48 10 0	0 0 0

METALS (continued).	£. s. d.	£. s. d.
Copper (cont.)—		
Sheets, strong	56 0 0	0 0 0
Chili, bars	43 15 0	0 0 0
Yellow Metal ... lb.	0 0 5	0 0 5½
Lead—		
Pig, Spanish ... ton	12 12 6	12 13 9
English, com. brands	12 17 6	0 0 0
Tin—		
Straits ... ton	91 15 0	0 0 0
Australian	91 15 0	0 0 0
English Ingots	95 0 0	0 0 0
Zinc—English sheet ... ton	21 0 0	22 0 0
OILS.		
Linseed ... ton	21 17 6	22 2 6
Cocoanut, Cochin	26 15 0	27 10 0
Ceylon	23 10 0	0 0 0
Palm, Lagos	25 10 0	26 0 0
Rapeseed, English pale	31 15 0	0 0 0
" brown	30 5 0	0 0 0
Cottonseed, refined	27 0 0	28 0 0
Tallow and Oleine	31 0 0	40 0 0
Lubricating, U.S.	5 0 0	6 0 0
" refined	7 0 0	12 0 0
Tar—Stockholm ... barrel	1 4 3	1 4 6
Archangel	0 15 9	0 16 0

COMPETITION, CONTRACTS, & PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

COMPETITION.

Nature of Work.	By whom Required.	Premium.	Designs to be delivered.	Page.
Municipal Buildings	Sheffield Corporation ...	600*l*.	Dec. 2nd	i.

CONTRACTS.

Nature of Work, or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Broken Granite	Barnet Local Board	*Official*	Sept. 2nd	ii.
Drainage, &c., Works	Poplar Union	Clarkson	Sept. 4th	x.
Broken Granite and Flints	County of Sussex	C. Adcock	Sept. 6th	ii.
Making-up Roads and Laying Tar-paving	Walthamstow Loc. Bd.	*Official*	do.	ii.
Pulling Down and Removing Buildings	Gloucester Municipal Buildings Committee	do.	do.	ii.
Erection and Furnishing of School	Llansamlet School Bd.	Rees Llewelyn	Sept. 9th	x.
Granite Kerb	East Ham Local Board	W. H. Savage	Sept. 10th	x.
Broken Granite	do.	do.	do.	x.
Paving Footpaths	do.	do.	do.	x.
Levelling and Making-up Streets	do.	do.	do.	x.
Roadmaking and Paving Works	Hammersmith Vestry	H. Mair	Sept. 11th	x.
General Sewer Works	Lambeth Vestry	Hugh McIntosh	Sept. 12th	x.
New Schools	Fenny Stratford Sch. Bd.	W. Hull	Sept. 14th	x.
Sewerage Works	Teddington Local Board	H. York	Sept. 16th	x.
Underground Convenience	Paddington Vestry	*Official*	do.	x.
Enlargement of P. O., Holloway	Com. of H.M. Works	do.	Sept. 17th	x.
Construction of Tunnel, &c.	Hastings Lift Co., Lim.	F. & J. Plowman	Sept. 18th	ii.
New Vestry Hall and Offices	St. Martin-in-the-Fields Vestry	R. Walker	Sept. 19th	x.
Erection of Board School	Tilehurst School Board	F. W. Albury	Sept. 21st	x.
New Coastguard Station, Deal	Admiralty	*Official*	Sept. 27th	x.
Superstructure of Lunatic Asylum	London County Council	G. T. Hine	Sept. 28th	ii.
Enlargement of Lunatic Asylum, Coulsdon	do.	C. H. Howell	Sept. 30th	ii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Borough Surveyor's Assistant	Reading Town Council	100*l*.	Sept. 9th	xvii.
District Surveyors (3)	Lancashire C. C.	200*l*. each	Sept. 17th	xvi.

TENDERS.

[Communications for insertion under this heading must reach us *not later* than 12 *Noon* on *Thursdays*.]

ABBOT'S LANGLEY (Herts).—For general repairs to the Manor House, for the President and Fellows of Trinity College, Oxford, and Sydney Sussex College, Cambridge. Mr. C. P. Ayres, architect, Watford:—

J. Stone, Watford ... £725 0 0
C. Brightman, Watford ... 714 0 0
T. Turner, Limited, Watford ... 694 0 0
J. Hales, Hemel Hempstead* ... 595 10 0
* Accepted.

ACTON, W.—For the erection of six shops in High-street. Mr. Edward Monson, jun., architect, Grosvenor House, The Vale, Acton, W.:—

T. Anthony, Brentford, W. ... £3,119 0 0
A. Bailey, Ealing, W. ... 2,898 0 0
Edwards & Son, Ealing, W. ... 2,646 0 0
G. Hooper, Acton, W. ... 2,540 0 0
G. Lyford, Shepherd's-bush, W. ... 2,540 0 0
Penny & Co., Ealing, W. (accepted) ... 2,495 0 0

ACTON.—For the erection of laundry in Bollo Bridge-road, South Acton. Mr. Edward Monson, jun., architect, Grosvenor House, The Vale, Acton, W.:—

James Hedges, Acton (accepted) ... £690 0 0

BISHOP'S STORTFORD.—For kilns at Bishop's Stortford, for Messrs. Barclay, Perkins, & Co. Messrs. Inskipp & Mackenzie, architects, No. 5, Bedford-row, W.C. Quantities by Messrs. R. L. Curtis & Sons, 119 & 120, London-wall, E.C.:—

Glasscock ... £6,570 0 0
Kirk & Randall ... 6,355 0 0
Bell & Son ... 6,297 0 0
Brown (accepted) ... 5,980 0 0

BISHOP'S STORTFORD.—For new kilns, &c., at Bishop's Stortford, for Messrs. John Taylor & Son. Messrs. Inskipp & Mackenzie, architects, No. 5, Bedford-row, W.C. Quantities by Messrs. R. L. Curtis & Sons, 119 and 120, London-wall, E.C.:—

Hitch ... £1,935 0 0
Brown ... 1,790 0 0
Glasscock (accepted) ... 1,680 0 0

BOXMOOR (Herts).—For rebuilding Two Waters Mill, for the Grand Junction Canal Company. Mr. C. P. Ayres, architect, Watford:—

W. B. Neal, Watford ... £2,328 0 0
H. M. Dove, Watford ... 2,325 0 0
T. Turner, Limited, Watford ... 2,240 0 0
G. & J. Waterman, Watford ... 2,147 0 0
J. Payne, Hemel Hempstead ... 1,995 0 0
Andrews & Sons, Watford* ... 1,968 0 0
* Accepted.

CAMBRIDGE.—For roadway bridge (over the river Cam) and approaches, for the Cambridge Corporation and the Local Board of Chesterton. Mr. John J. Webster, M.Inst.C.E., 67, Lord-street, Liverpool, and Mr. Frank Waters, 1, Sidney-street, Cambridge, engineers:—

	Contracts. No. 1.* £. s. d.	No. 2.† £. s. d.	No. 3.‡ £. s. d.	Total. £. s. d.
Renshaw, King, & Co.	4,775 0 0	—	—	—
Page & Co.	—	4,799 0 0	—	—
Hesman & Froude	—	4,332 0 5	—	—
J. Lysaght	—	4,076 0 0	—	—
Handyside & Co.	—	3,934 15 2	—	—
G. F. A. Mills	6,591 2 0	—	2,830 17 8	—
J. Bush	5,693 1 2	—	2,680 19 8	—
J. Cook	4,736 9 0	—	2,546 15 0	—
Thoday & Son	4,756 0 0	—	1,922 12 2	—
Cochrane & Sons	5,402 6 10	4,302 9 0	3,094 5 9	12,799 1 7
T. Gibson	4,480 14 2	4,504 16 3	2,606 2 0	11,592 12 5
G. Double	5,105 13 0	3,742 17 0	2,717 3 0	11,565 13 0
Helme & King	4,683 6 4	3,981 10 0	2,437 3 4	11,101 19 8
Pickthall & Son	4,954 18 3	4,044 15 3	2,059 18 0	11,059 11 6
J. Mackay§	3,902 12 0	3,539 6 6	2,264 15 9	9,706 15 3‖

* Contract No. 1.—Earthwork, masonry, &c.
† Contract No. 2.—Steel and ironwork.
‡ Contract No. 3.—New roadway.
§ Fornham-road, Bury St. Edmunds.
‖ Accepted.

CATSFIELD (Sussex).—For the erection of hunt stables, for Lord Brassey. Mr. Arthur Wells, architect, 25, Havelock-road, Hastings:—

Taylor Bros., Hastings ... £1,565 0 0
Peter Jenkins, St. Leonard's-on-Sea ... 1,537 0 0
Eldridge & Cruttenden, St. Leonard's-on-Sea ... 1,530 0 0
H. E. Cruttenden, St. Leonard's-on-Sea ... 1,519 0 0
T. Salter, St. Leonard's-on-Sea* ... 1,491 0 0
* Accepted.

CHARLTON (Kent).—For Wesleyan Schools, Lower-road, Charlton. Mr. H. H. Church, architect, Woolwich:—

Staines & Son ... £1,95? 0 0
James Holloway ... 1,690 0 0
Proctor ... 1,350 0 0
Covil (accepted) ... 1,150 0 0

COLCHESTER.—For new water-closets, &c., at the workhouse, for the Board of Guardians of the Colchester Union. J. W. Start, architect, Colchester:—

C. Mills ... £260 7 6
J. Howe ... 258 0 0
A. E. Cole ... 239 10 0
J. H. Johnson ... 236 10 0
Wm. Rogers ... 227 15 0
F. Dupont (accepted) ... 193 0 0
[All of Colchester.]

CONGLETON.—For new hot-water heating apparatus, new galleries and screens, oak block and concrete flooring, &c., for the Corporation. Quantities by the architects, Messrs. W. Sugden & Son, Leek:—

Accepted Tenders.
Haden & Son, Trowbridge; Thos. Brown, Congleton; Roger Lowe, Farnworth ... £385 0 0

COVENTRY.—For building factory, Spon-street, for the Coventry Watch Movement Manufacturing Company, Limited. Mr. Herbert W. Chattaway, architect, Trinity-churchyard, Coventry:—

C. Gray Hill, Much Park-street ... £1,487 0 0
J. Worwood, Much Park-street ... 1,344 0 0
C. Haywood, jun., Gosford-street ... 1,315 0 0
M. Kelley & Son, Foleshill ... 1,295 0 0
C. Garlick, Far Gosford-street* ... 1,190 0 0
* Accepted. [All of Coventry.]

EAST GRINSTEAD (Sussex).—For new Guest-house, St. Margaret's Convent, East Grinstead. Mr. Arthur Edmund Street, architect, London. Quantities by Mr. Charles F. A. Poland, London:—

J. W. Bunning & Son, 3, Talfowed-place, Camberwell, S.E. ... £2,940 0 0
Wall & Hook, Brunscombe, Gloucestershire (accepted) ... 2,922 17 0

EPPING.—For erecting a pair of semi-detached houses and boundary walls on the Kendal Lodge Estate. Mr. W. H. Pertwee, architect, 14, Clifford's Inn, E.C.:—

J. W. Falkner ... £2,790 0 0
John Bentley ... 2,680 0 0
John Beale ... 2,658 0 0
Martin, Wells, & Co. ... 2,452 10 0
North Bros. (accepted) ... 2,394 0 0

EPPING.—For erecting residence and boundary walls on the Kendal Lodge Estate. Mr. W. H. Pertwee, architect, 14, Clifford's Inn, E.C.:—

John Beale ... £1,770 0 0
Martin, Wells, & Co. ... 1,700 0 0
North Bros. ... 1,665 0 0
John Allen & Sons ... 1,640 0 0
J. W. Falkner ... 1,597 0 0
F. Dupont, Colchester ... 1,535 0 0

FOREST-GATE.—For making sundry alterations and improvements to the "Princess Alice" public-house, Romford-road, Forest-gate, E., for Mr. Charles John Knowler. Mr. James F. Wesley, architect, Forest-gate:—

F. Sage & Co. ... £1,093 0 0
T. Heath ... 895 0 0
Drew & Cadman ... 864 0 0
Trent Bros. (accepted) ... 835 0 0

HANWELL.—For the erection of temporary wards and school for Ophthalmic Children, Hanwell, for the managers of the Central London School District. Messrs. H. Jarvis & Son, architects, 29, Trinity-square:—

Perry & Co. ... £25,200 0 0
Mowlem & Co. ... 24,737 0 0
E. Lawrance & Sons ... 22,750 0 0
W. & F. Croaker ... 22,200 0 0
Peto Bros. ... 21,277 0 0
Brass & Sons ... 20,935 0 0
Wall Bros. ... 20,649 0 0
Kirk & Randall ... 19,639 0 0

HORNSEY.—For making-up Elm Grove, Crouch-end, for the Hornsey Local Board. Mr. T. de Courcy Meade, Engineer:—

Mowlem & Co., Westminster ... £1,291 0 0
T. G. Dunmore, Crouch-end ... 1,233 0 0
G. Bell, Tottenham ... 1,059 0 0
F. A. Jackson & Son, Stroud-green-road ... 1,055 0 0
T. Adams, Kingsland ... 980 4 8
S. Hudson, Crouch-end (accepted) ... 969 15 3

HORNSEY.—For new storm-water sewer, Campsbourne Estate, Hornsey, for the Hornsey Local Board. Mr. T. de Courcy Meade, Engineer:—

Mowlem & Co., Westminster ... £2,901 0 0
Willmott & Sons, Hitchin ... 2,630 0 0
G. Bell, Tottenham ... 2,496 0 0
A. Walker, Holloway ... 2,450 0 0
T. G. Dunmore, Crouch-end ... 2,387 0 0
Holme & King, Euston-road ... 2,321 0 0
T. Adams, Kingsland ... 2,286 4 3
F. A. Jackson & Son, Stroud-green-road (accepted) ... 2,110 0 0

LONDON.—For repairs, &c., to No. 93, Strand, W.C., for the Middlesex Aërated Bread and Restaurant Company, Limited. Mr. Lawton R. Ford, architect, St. Dunstan's-chambers, 24, Railway-approach, London Bridge, S.E.:—

F. Britton ... £280 0 0

LONDON.—For the erection of the Kensington Hotel, High-street, Kensington. Mr. Basil Champneys, architect:—

Perry & Co. (accepted)	£70,000	0	0

LONDON.—For the erection of St. Martin-in-the-Fields Free Library, St. Martin's-lane, for the Library Commissioners. Mr. Robert Walker, F.R.I.B.A., architect, 33, King-street, Covent-garden. Quantities supplied by Messrs. H. T. Northcroft, Son, & Neighbour:—

Balaam Bros.	£7,600	0	0
Perry & Co.	7,359	0	0
Kirk & Randall	7,350	0	0
Garlick & Horton	7,221	0	0
Mowlem & Co.	7,186	0	0
S. & W. Pattinson	7,146	0	0
Lobb & Oliver	7,126	0	0
Hockley & Son	7,100	0	0
Brass & Son	6,877	0	0
Stephens & Bastow	6,877	0	0
E. Toms	6,863	0	0
J. T. Chappell	6,861	0	0
Allen & Son	6,825	0	0
Peto Bros.	6,769	0	0

LONDON.—For alterations at No. 45, Strand, for Messrs. Rolls & Co. Mr. H. I. Newton, architect, 45, Victoria-street, Westminster:—

Lamble	£725	0	0
J. Beale, Westminster-bridge-road	700	0	0

LONDON.—For sundry additions to house, Maida Vale, for Mr. H. Nathan. Mr. Walter Graves, architect, Winchester House, E.C.:—

Burdett & Sons	£541	0	0 !
A. G. Bolding	293	0	0
A. White & Co.	207	0	0 !

LONDON.—For alterations to National Schools, Stockwell:—

Mallett	£1,425	0	0
Dove Bros.	1,325	0	0
Lathey Bros.	1,230	0	0
Rider & Son	1,218	0	0
Downs	1,165	0	0
Fredk. Tarrant	1,111	0	0
Maxwell Bros.	1,085	0	0
Holloway Bros.	1,054	0	0

LONDON.—For repairs and decorations at 59, West Cromwell-road, South Kensington, S.W., for Mr. Thomas Huggett. Mr. Walter J. Ebbetts, F.R.I.B.A., architect, Savoy House, 115, Strand, W.C.:—

C. Woods	£216	0	0
H. Baylis	188	5	0
J. Barker & Co.	187	0	0
Toten & Sons	175	0	0
C. F. Kearley	163	0	0
W. Steel (accepted)	149	0	0

LONDON.—For the erection and completion of Mission Church of the Good Shepherd, Wilman-grove, Dalston, E. Mr. W. G. Shoebridge, architect:—

J. Anley	£597	0	0
A. White & Co.	593	0	0
Walker	579	0	0
Turtle & Appleton	578	0	0

LONDON.—For pulling down and rebuilding the "Cross Keys" public-house, Laurence-street, Chelsea, for Mr. W. Smith. Mr. T. W. Willis, architect. Quantities supplied by Messrs. C. Stanger & Son, 21, Finsbury-pavement, E.C.:—

Patrick & Son	£1,747	0	0
Gladding	1,588	0	0
King & Son	1,570	0	0
Green & Lee	1,540	0	0
Gould & Bland	1,512	0	0
Jas. A. Taylor (accepted)	1,509	0	0

LONDON.—For alterations and decorations at 3, Hyde Park-square, for Mr. A. McGeorge. Mr. John Farrer, architect, Finsbury-pavement:—

Collinson & Lock	£628	15	0
J. T. Chappell	474	0	0
Simpson & Co.	446	0	0
Greatorex & Co. (accepted)	439	0	0

LONDON.—For sanitary alterations and decorations at 56, Westbourne-terrace, for Mr. P. Merino:—

Greatorex & Co. (accepted)	£387	0	0

LONDON.—For rebuilding No. 18, St. James's-place, W. Mr. J. Nixon Horsfield, architect, 20, Market-place, Kingston-upon-Thames:—

Lorden & Son	£1,659	0	0
Turtle & Appleton	1,460	0	0
Holloway Bros.	1,347	0	0
J. Falkner	1,340	0	0
Dickeson & Wallis (accepted)	1,319	0	0
Bates (withdrawn)	1,120	0	0

LONDON.—For alterations and repairs to the "Hat and Feathers" public-house, Goswell-road, E.C., for Mr. E. Little. Messrs. Saville & Martin, architects, 86 and 87, Strand, W.C. Quantities supplied:—

J. Beal	£950	0	0
C. H. Bates	934	0	0
Spencer & Co.	930	0	0
H. & E. Lea	797	0	0
J. Vears	720	0	0
Gould & Brand (accepted)	699	0	0

Pewterer's Work.

W. Helling (accepted)	69	10	0

Gas-fitter's Work.

E. Pragnell (accepted)	40	3	6

LONDON.—For painting and general repairs to No. 44, Highbury-grove, N., for Mr. Richard Baker. Messrs. Saville & Martin, architects, 86 and 87, Strand, W.C.:—

Spencer & Co.	£351	0	0
Ward & Lamble	337	0	0
Vears & Co.	316	10	0
Goodall	270	0	0
Gould, Brand, & Co. (accepted)	266	0	0

LONDON.—For structural preliminary repairs and alterations at 4, Stanhope-street, for Mrs. Jackson:—

Greatorex & Co. (accepted)	£199	10	0

LONDON.—For the erection of a circular running shed at Battersea, for the London, Brighton, and South Coast Railway Company. Mr. F. D. Banister, engineer. Quantities by Mr. C. A. Gough:—

Gregory & Co.	£14,259	0	0 !
Hore	13,630	0	0
Bull	13,198	0	0
Light	13,098	0	0
J. T. Chappell	12,874	0	0
D. & W. Pattinson	11,663	0	0
Young & Co.	11,375	0	0
Holloway Bros.	11,049	0	0
J. O. Richardson	10,990	0	0
Kirk & Randall	10,620	0	0
Deacon & Co.	10,145	0	0
J. Longley & Co.	9,970	0	0
J. T. Firbank (accepted)	8,730	0	0 !

LONDON.—For the construction of 18-in. pipe sewer in Goswell-road, for the Vestry of Clerkenwell. Mr. William Iron, surveyor:—

A. Palmer	£1,208	0	0 !
Mowlem & Co.	1,141	0	0
Pizzey	1,055	0	0
T. G. Dunmore	1,027	0	0
Nicholls	1,018	0	0
Mayo	1,000	0	0
Walker	999	0	0
Woods & Co.	998	0	0
Saunders	997	13	0
G. Bell	987	0	0
Fry	961	18	8
T. Adams	942	0	11
C. Killingback	936	0	0
Ballard	787	0	0
Butler (accepted)	610	0	0 !

[Surveyor's estimate, 1,020*l*.]

LONDON.—For the construction of 12-in. pipe surface water drain in Colney Hatch-lane, for the Vestry of Clerkenwell. Mr. William Iron, surveyor:—

Mowlem & Co.	£531	0	0 !
A. Palmer	462	15	0
Mayo	450	0	0
Woods & Co.	429	0	0
Fry	366	17	4
Pizzey	362	0	0
T. G. Dunmore	360	0	0
T. Adams	350	5	9
G. Bell	345	0	0
Walker	330	0	0
Nicholls	329	0	0
C. Killingback	327	0	0
Ballard	287	0	0
Butler (accepted)	275	0	0 !

[Surveyor's estimate, £450.]

LONDON.—For new front and other alterations to Nos. 224 and 225, Upper-street, Islington, for Mr. R. Roberts. Mr. J. Kingwell Cole, architect, 28, Mount-street, Grosvenor-square, W.:—

Sage & Co.	£369	0	0
G. Colls	350	0	0
Wall Bros.	337	0	0
Drew & Cadman (accepted)	318	0	0

LONDON.—For works in alterations to the "Pembury Tavern," Amherst-road, Hackney, for Mr. T. E. Cross. Messrs. Bird & Walters, architects:—

Patman & Fotheringham	£2,437	0	0
Burman & Sons	2,395	0	0
C. F. Kearley	2,368	0	0
S. Goodall	2,359	0	0
Williams & Son	2,348	0	0
Edmund Toms	2,219	0	0
Mower & Son	2,117	0	0
A. Crouch	1,976	0	0

LONDON.—For the erection of additional stabling for forty horses, for Messrs. Carter, Paterson, & Co., Limited, at their depôt, Church-street, Stoke Newington, under the superintendence of Mr. W. Eve, 10, Union-court, Old Broad-street, E.C.:—

Chappell	£1,546	0	0
Adamson	1,470	0	0
Chessum	1,460	0	0
Harris & Wardrop	1,444	0	0
Downs	1,419	0	0
Holliday & Greenwood	1,398	0	0
Dabbs	1,397	0	0
Holland	1,375	0	0
Burman	1,300	0	0
Johnson	1,280	0	0
Higgs	1,260	0	0
Godfrey & Son, Evering Works, Clapton (accepted)	1,190	0	0

LONDON.—For putting in 1,600 ft. of 12-in. pipe-sewer, in Court-lane, Dulwich, for the Estates Governors of Dulwich College. Mr. Charles Barry, architect and surveyor to the Governors:—

Harris, Southampton-street, Camberwell	£300	0	0
Killingback, Camden Town	290	0	0
Mayo, Brixton-road	240	0	0
Adams, Kingsland	230	0	0
Mitchell, Dulwich (accepted)	195	0	0

LONDON.—For general works in alterations, repairs, and decorative painting at the Travellers' Club, Pall Mall. Mr. Charles Barry, architect:—

Adams & Co., Haymarket	£2,[illegible]	0	0
Perry & Co., Bow, Essex	2,300	0	0
Holland & Hannen, Bloomsbury	1,966	0	0
Boris, New-street, Dorset-square	1,919	0	0
Schmidt, Holloway (accepted)	1,[illegible]	0	0

LONDON.—For taking up the old system of drains at the Travellers' Club, Pall Mall, and entirely reconstructing the same and all sanitary fittings connected therewith. Mr. Charles Barry, architect:—

Jennings & Son, Stangate	£[illegible]	0	0
Adams & Co., Haymarket (accepted)	[illegible]	0	0

LONDON.—For alterations, &c., to "The Globe," 13, Finsbury-pavement, Moorgate-street, E.C., for Messrs. Showell & Probyn. Mr. H. J. Newton, architect, 49, Victoria-street, Westminster, S.W.:—

Kirk & Randall, Woolwich	£2,160	0	0
W. Downs, Walworth	2,157	0	0
H. Burman & Sons, Kennington-park	2,131	0	0
S. E. Lamble, Kentish-town	2,118	0	0
S. Godden, Bryanstone-square	2,095	0	0
J. Beale, Westminster Bridge-road*	2,015	0	0

*Accepted.

LONDON.—For alterations and additions to No. 61, Avenue-road, Regent's Park, N.W. Mr. Richard J. Lovell, architect. Quantities by Mr. James Kennedy:—

Colls & Son	£1,180	0	0
Simpson & Son	1,172	0	0
G. H. & A. Bywaters	1,130	0	0
Roberts	998	0	0
J. Ivory	989	0	0
C. W. Boris & Co.	987	0	0

LONDON.—For new water-closets, and roofs to corridors at the workhouse, Renfrew-road, S.E., for the Guardians of the Poor of the Parish of St. Mary, Lambeth. Mr. Thomas W. Aldwinckle, architect, 2 East India-avenue, Leadenhall-street, E.C. Quantities supplied:—

W. Smith	£1,480	0	0
Staines & Son	1,347	0	0
W. Johnson	1,330	0	0
L. Whitehead & Co.	1,295	0	0
F. J. Wicks	1,246	0	0
J. R. Hunt	1,232	0	0
A. & W. Garner	1,209	0	0
J. Mills	1,200	0	0
W. & H. Castle	1,188	0	0
J. Mould	1,180	0	0
M. Marsland	1,143	0	0
A. M. Deacon & Co. (accepted)	1,128	0	0

LONDON.—For alterations to the "British Oak" tavern, Westbourne-park-road, for Mr. Ascott. Mr. H. I. Newton, architect, 49, Victoria-street, Westminster:—

J. Beale	£1,520	0	0
Godden	1,500	0	0
Lamble	1,475	0	0
Burman	1,460	0	0
Marks	994	0	0

LONDON.—For alterations at the "Globe Tavern," Finsbury-pavement, for Messrs. Showell & Probyn. Mr. H. I. Newton, architect, 49, Victoria-street, Westminster:—

Kirk & Randall	£2,160	0	0
Down	2,157	0	0
Burman & Sons	2,131	0	0
Lamble	2,118	0	0
Godden	2,095	0	0
J. Beale, Westminster-bridge-road*	2,015	0	0

* Accepted.

LONDON.—For alterations at No. 8, Clapham-road, for Mr. Hunnex. Mr. J. A. J. Woodward, architect, 10, Crown Villas, Kennington Oval:—

Hooper	£198	10	0
J. Beale, Westminster-bridge-road*	186	0	0

* Accepted.

LONDON.—For alterations to the "White Hart," St. Thomas's-street, S.E., for Mr. Brown. Messrs. Treacher & Fisher, architects, 30, Coleman-street, E.C.:—

Burman & Sons	£990	0	0
Spencer & Co.	975	0	0
Turtle & Appleton	890	0	0
J. Walker	867	0	0
Allen & Son	861	0	0
J. Beale (amended tender) (accepted)	694	0	0

NOTTINGHAM.—For alterations to shop, Lister Gate, Nottingham. Messrs. F. Jackson & Son, architects, 16, Low-pavement, Nottingham. Quantities supplied by the architects:—

Gilbert & Gabbitass	£400	0	0
Hodson & Son	387	0	0
G. Bell & Sons	374	0	0
John Cooper	373	0	0
A. B. Clarke	350	0	0
James Wright	346	0	0
S. & J. Cargill, Duke-street, New Basford (accepted)	338	14	0

[All of Nottingham].

PLUMSTEAD.—For erecting detached dwelling-house in Herbert-road, for Mr. George Bryceson. Mr. H. H. Church, architect, Woolwich:—

Jerrard	£1,015	0	0
Proctor	960	0	0
Covil (accepted)	790	0	0

PLUMSTEAD.—For erecting additional walling and entrance gates at the Plumstead Cemetery, Wickham-lane. Mr. H. H. Church, architect, Woolwich. Quantities supplied:—

Bridel	£1,146	0	0
Proctor	819	0	0
Rackham & Bentham	580	0	0
Battley (accepted)	514	0	0

TOTTENHAM.—For erecting an addition to cellars, &c., at the Lager Beer Brewery, Portland-road, Tottenham, for the Tottenham Lager Beer and Ice Factory Company, Limited. Mr. Charles Dunch, architect. Quantities by Mr. James F. Wesley, Fenchurch-street:—

Mowlem & Co.	£11,956	0	0
Higgs & Hill	11,800	0	0
Grover & Son	11,816	0	0
Dearers & Son	11,070	0	0
J. & J. Greenwood	11,000	0	0
J. Morter	10,990	0	0
Harris & Wardrop	10,960	0	0
Mark Gentry	9,[illegible]	0	0
Peto Bros.	9,[illegible]	0	0
B. Lawrence & Sons	9,280	0	0
J. T. Chappell	9,[illegible]	0	0

WATFORD (Herts).—For alterations to Eastbrook House, Queen's-road, for Mr. C. Saville. Mr. C. P. Ayres, architect, Watford:—

T. Turner, Limited	£288	0	0
W. B. Neal	273	0	0
Judge & Hames	255	0	0
G. Wiggs	245	0	0
Andrews & Sons	244	0	0
C. Brightman	219	10	0
Clifford & Gough	219	0	0
G. & J. Waterman	212	0	0
H. M. Dove (accepted)	208	0	0

[All of Watford.]

WOODFORD (Essex).—For additions and alterations to existing schools, at Woodford-green, to accommodate 750 children, for the Woodford School Board. Mr. Edward Tidman, C.E., architect, 34, Victoria-street, Westminster. Quantities by the architect:—

Langley & Co., Crawley, Sussex	£3,600	0	0
Barrett & Power, Hackney	3,566	0	0
W. H. T. Kelland, Stoke Newington	3,490	0	0
W. Gregor, Stratford, E.	3,330	0	0
F. Ranger, Woodford, Essex	3,298	0	0
Everett & Co., Colchester	3,277	0	0
Godfrey & Son	3,165	0	0
C. Simmons, Buckingham-road, Harleden	3,147	0	0
S. Hipwell, Wisbech	3,129	0	0
D. Ellwood & Son, Sandy, Beds	3,076	0	0
R. Edwards, Cambridge-road, E.	3,073	0	0
J. Egan & Co., Buckhurst-hill	2,958	0	0
H. Wells, Woodford, Essex	2,925	0	0
Lebb & Oliver, New Southgate, N.	2,900	0	0
F. J. Coxhead, Leytonstone, Essex	2,698	0	0

WOOLWICH.—For erecting forage store for Messrs. C. & C. Tuff, on their wharf at Woolwich. Mr. H. H. Church, architect, Woolwich. Quantities supplied:—

H. L. Holloway	£1,479	0	0
Jerrard	1,379	0	0
Kirk & Randall	1,337	0	0
Proctor	1,325	0	0
Staines & Son	1,268	0	0
Martin	1,230	0	0
Woodward & Co.	1,198	0	0
James Holloway	1,164	0	0
R. & E. Evans	1,120	0	0
Martin, Wells, & Co.	1,038	0	0
Multon & Wallis	998	0	0
Wallis & Sons	993	0	0
Kemp	985	0	0
Battley	947	0	0
Girling (accepted)	939	0	0

WOOLWICH. — For alterations and additions at Nos. 135 and 136, High-street, for Mr. Robt. Webb. Mr. H. H. Church, architect, Woolwich:—

E. G. Covil (accepted)	£500	0	0

WOOLWICH.—For erecting Wesleyan Schools and Soldiers' Institute, William-street. Mr. H. H. Church, architect, Woolwich. Quantities by Mr. W. H. Strudwick:—

E. G. Covil	£3,200	0	0
Wallis & Sons	2,967	0	0
Staines & Son	2,899	0	0
Battley	2,828	0	0
James Holloway	2,800	0	0
Proctor	2,780	0	0
Woodward & Co.	2,700	0	0
H. L. Holloway	2,687	0	0
Martin, Wells, & Co.	2,650	0	0
Kemp	2,639	0	0
Multon & Wallis (accepted)	2,575	0	0

WOOLWICH.—For erecting drill shed for the 3rd Kent Rifle Volunteers (Royal Arsenal), in Beresford-street. Mr. H. H. Church, architect, Woolwich. Quantities supplied:—

Outhwaite & Sons	£2,990	0	0
Kemp	2,938	0	0
Girling	2,935	0	0
Wallis & Sons	2,930	0	0
Woodward & Co.	2,909	0	0
R. & E. Evans	2,879	0	0
James Holloway	2,878	0	0
Staines & Son	2,830	0	0
Jerrard	2,809	0	0
Multon & Wallis	2,798	0	0
E. G. Battley	2,797	0	0
H. L. Holloway	2,763	0	0
Kirk & Randall	2,698	0	0
Martin, Wells, & Co.	2,662	0	0
Proctor (accepted)	2,650	0	0

WOOLWICH.—For rebuilding "The Shakespeare" tavern, Powis-street, for Mr. G. H. Campbell. Mr. H. H. Church, architect, Woolwich. Quantities by Mr. W. H. Strudwick:—

Kirk & Randall	£3,730	0	0
Proctor	3,730	0	0
Staines & Son	3 685	0	0
Multon & Wallis	3,654	0	0
James Holloway	3,451	0	0
Wallis & Sons	3,437	0	0
Jerrard	3,333	0	0
R. & E. Evans	3,265	0	0
Martin, Wells & Co.	3,260	0	0
Kemp	3,249	0	0
Battley (accepted)	3,047	0	0
H. L. Holloway (too late)	3,047	0	0

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